

Written evidence submitted by CIBSE (PEG0086)

The respondent is The Chartered Institution of Building Services Engineers (CIBSE), the professional body for energy using systems in buildings.

CIBSE members design, install, operate, maintain and refurbish the energy using systems in homes, and are specifically trained in assessment of heat loss from buildings and the design of energy using systems to provide heating and hot water, lighting, ventilation, cooling and small power distribution in homes.

CIBSE has over 20,000 members, about 15,000 in the UK. We publish best practice advice and guidance that is internationally recognised as authoritative. The CIBSE Knowledge Portal makes it available online as the leading systematic engineering resource for the building services sector.

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EXECUTIVE SUMMARY

§1 - As we recover from the COVID-19 pandemic there is a renewed opportunity to focus on the challenges of climate change mitigation and adaptation, delivering safe and healthy buildings that provide for occupant wellbeing and maintaining biodiversity and environmental protection. At the same time we need to build our resilience to future crises. The current pandemic highlights the need to be guided by science. Later action will cost more and may lead to irreversible damage.

§2 - We need to avoid expenditure and stimulus in activities that incur a carbon, environmental, or health penalty, as these will incur long-term costs in climate mitigation, remediation of climate impacts (e.g. flooding), and healthcare costs (for example and to list just a few, the costs related to the physical and mental health consequences of air pollution, fuel poverty, overheating, poor access to green space, and inactive lifestyles due to insufficient cycling and walking infrastructure). This means that we need to avoid silo thinking and short-term outlook: when assessing good value or return on investment from recovery measures we need to look at a wider range of indicators than just short-term economic multipliers and GDP, and look at carbon, environmental and health impacts too.

§3 - A green recovery could contribute significantly to climate and environmental objectives **as well as** job creation and UK export opportunities, now and in the long term. CIBSE therefore recommend the following strategy:

§4 - **A clear commitment by government to embed climate, environmental, health, and building safety objectives in the recovery plan.** This should be demonstrated by action, including in public procurement and the improvement of public assets.

§5 - **Making the most of the current period:** the period of lower economic activity creates opportunities to prepare and facilitate the transition to a zero carbon economy by:

- a. **Developing low-carbon skills, expertise and capacity**, including the areas of retrofit, low-carbon heat, and digitisation. These objectives should be embedded in the government's schemes for job creation and retention, including the new Talent Retention Scheme.
- b. **Developing plans** that embed climate and biodiversity objectives, throughout government policy, recovery packages, and public procurement.
- c. **Acting now where it is easier than usual, especially where it can pre-empt detrimental reactions post-lockdowns.**
- d. **Gathering data and lessons** on how beneficial lasting change could be achieved.

§6 - Improving the policy and incentive framework to prioritise climate, environmental and health and wellbeing improvements as well as job creation, and turning this into action. The following should be a focus due to their demonstrated potential to benefit the economy, health and wellbeing, and the climate:

- a. Low-carbon **retrofit and refurbishment**: plans for mass retrofit of the building stock must be developed, with phases to develop capacity and skills and going hand-in-hand with a programme of **digitisation, spreading the adoption of digital building passports** containing a record of the asset and a low-carbon transition plan.
- b. **Nature-based solutions**
- c. **Low-carbon and clean infrastructure.**

RESPONSE TO INQUIRY QUESTIONS

Q1 - What core/guiding principles should the Government adopt/prioritise in its recovery package, and why?

§7 - CIBSE agree with the Committee on Climate Change 6 principles for a resilient recovery, and we recommend the following strategy to turn them into action:

§8 - A clear commitment by government to embed climate, environmental, health, and building safety objectives in the recovery plan: Expert evidence shows that such investments lead to long-term economic benefits¹. We note that decarbonisation is an objective of the CLC's recovery plan, but need more specific and stronger commitments. There should be clear links between investment and decarbonisation objectives. This should be demonstrated by action, including in public procurement and the improvement of public assets.

§9 - Making the most of the current period: the period of lower economic activity creates opportunities to prepare and facilitate the transition to a zero carbon economy – see Q9.

§10 - Improving the policy and incentive framework to prioritise climate, environmental and health and wellbeing improvements as well as job creation, and turning this into action. This should create comprehensive, stable and consistent support as well as the removal of existing measures which, intentionally or not, act as disincentive to reduce fossil fuel use. Retrofit of the existing building stock and investment in green infrastructure and clean energy and transport infrastructure are clear priorities – see Q5.

Q2 - How can the Government borrow and/or invest to help the UK deliver on these principles?

¹ [Hepburn et al, May 2020: Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?](#)

§11 - In order for government investment to drive additional investment from the private sector, there needs to be confidence that government's policy will be consistent, stable, and turned into reality, as demonstrated through immediate action and through public sector leadership – see principles in Q1 and more details in Q3.

§12 - Borrowing and investment should prioritise projects which will deliver long-term benefits in terms of decarbonisation, biodiversity and other environmental objectives, and health. Retrofit and green infrastructure are clear priority sectors. Investment in job retention and creation must be for areas with long-term prospects, including the development of skills and expertise in retrofit, low-carbon heat, and digitisation.

Q3 - What measures and support will businesses need to rebuild consumer confidence and stimulate growth that is sustainable, both economically and environmentally?

§13 - Measures will depend on each sector, but there are general principles:

§14 - **Stable policy**, not start-and-stop, as otherwise supply chains will not invest in R&D, capacity, and skills; we have seen this for example with the Green Deal and renewable energy.

§15 - **Consistent messages**, including making sure that **incentives are aligned with policy objectives**. This is not currently the case, which can weaken the message on the importance of carbon objectives. It also means that **better carbon outcomes could be obtained for the same financial expenditure and without additional regulatory burden**. We have included examples in Appendix A.

§16 – Specifically to build consumer confidence and support growth in the retrofit sector, a **comprehensive regulatory and incentive framework** must be developed, informed by recommendations from the Green Construction Board (May 2020), and including:

- Interventions at all opportunity points (sales, leases, external and internal works...)
- Instruments including (but not necessarily limited to) Building Regulations, the planning system, and Minimum Energy Efficiency Standards. These must evolve to tackle in-use performance, beyond asset ratings and practical completion. We welcome the CLC's intent to focus on whole life performance, but this can only be fully achieved by going beyond the current instruments such as Energy Performance Certificates.
- Proposals to be published as soon as possible for revisions to Part L of the Building Regulations and its equivalents in the devolved administrations for existing buildings; these proposals should demonstrate real ambition towards net zero carbon, with increases in performance requirements, better processes to improve in-use performance, and measures to enable a transition to net zero (e.g. building passports and whole-house retrofit plans for net zero carbon).
- Government should lead by example in the way it procures and manages buildings, including procuring for in-use carbon performance, and disclosing the performance of the buildings it occupies². This will also contribute to achieving the cultural changes that are required in the sector in response to the Hackitt Review.

§17 - The **public sector** can lead by example and play a key role in building confidence and developing supply chains through public procurement. In the construction sector, it could play a role in developing retrofit skills and capacity and driving digitisation, including through ECO, the high-rise remediation programmes, and funds for Social Housing Decarbonisation,

² See [joint industry statement on measured operational building performance](#)

Green Homes Grants and public sector decarbonisation. Measures which should be considered include:

- Mandating the use of **schemes which support skills and built quality**, such as the PAS framework (for designs and for installers) and MCS on publicly-funded projects. Currently the only requirement is for PAS to be used on ECO projects.
- **Driving digitisation** by requiring the creation of digital building passports in publicly funded works, including a record of the asset and a low-carbon transition plan.
- **Procuring for performance** i.e. including performance targets in its contracts, including carbon emissions as well as other aspects of building performance such as comfort, air quality and user satisfaction. This would align with the government's construction strategy and its intention to procure for best value.
- **Monitoring and disclosing the performance of its buildings**, setting targets for improvements and reporting against it, and demonstrating leadership by example.

Q4 - Whether the government should give a higher priority to environmental goals in future support?

§18 - Yes, and this high priority must be demonstrated by action.

Q5 - Whether the Government should prioritise certain sectors within its recovery package, and if so, what criteria should it use when making such decisions? What conditions, if any, should it attach to future support?

§19 - The priority should be sectors where intervention is required in order to meet our climate goals, and where there is the potential for short and long-term job creation and export.

§20 - Transport and construction have been slow to decarbonize, as highlighted by the CCC; any government support to these sectors must be contingent on commitments to decarbonisation, in parallel with changes to policy, regulations and public procurement.

§21 - The following should be a focus due to their demonstrated potential to benefit both the economy and the climate¹:

- Low-carbon **retrofit and refurbishment** of the existing building stock, particularly housing. The scale of the retrofit challenge is huge (see Appendix B), and therefore so are the opportunities for job creation; furthermore, these jobs would be linked to local supply chains and therefore created throughout the country, contributing to the "leveling up" agenda.
- **Nature-based solutions** to improve resilience and offer a range of environmental, health and wellbeing benefits.
- Promotion of **low-carbon and clean infrastructure** through capital investment and the planning system, including the energy and transport systems.

Q6 - How can the Government best retain key skills and reskill and upskill the UK workforce to support the recovery and sustainable growth?

§22 - The retrofit sector offers huge job retention and creation potential. CIBSE welcome recent announcements on the Talent Retention Scheme and the Chancellor's commitment to preserving jobs and skills in the construction sector. If we are to deliver the energy efficient, high performing buildings we need it is essential that we retain and develop those

with the skills and expertise to design and construct our new buildings and refurbish and maintain our existing stock to the highest standards.

§23 - The key mechanisms for skills retention and development are:

- Public procurement – see Q3
- Support to training programmes, including the Talent Retention Scheme, which should embed carbon and environmental objectives and promote retrofit, low-carbon infrastructure and nature-based solutions as sectors with long-term potential and long-term support from government, to attract new entrants
- A supportive regulatory and incentive framework - see Q3.

§24 - More should be made of existing skills and competence schemes for retrofit and low-carbon heat:

- The PAS 2035/30 framework for specifications and installations, developed as a result of the Each Homes Count review and adopted by the Trustmark registration scheme. Trustmark is mandated for ECO works but not in all public works; PAS 2035/30 is not integrated in regulations. There are efforts in developing supply chains³, some with support from BEIS. However, overall, the PAS framework has only penetrated a very small part of the market. CIBSE understand there are currently only approximately 400 retrofit coordinators trained or in training.
- The Microgeneration Certification Scheme (MCS) for domestic low-carbon heat: its future post-RHI remains to be seen.
- In addition, a framework for skills and competence for non-domestic heat must be developed (the MCS addresses domestic heat and only small-scale non-domestic applications). We have detailed our recommendations for this in our recent response to the BEIS consultations on low carbon heat⁴.

Q8 - How should regional and local government in England, (including the role of powerhouses, LEAs and growth hubs, mayoralities, and councils) be reformed and better equipped to deliver growth locally?

§25 - Resources and skills in the public sector have been stretched for a number of years, and this must be considered as part of the overall upskilling programme for a low-carbon economy, to include public bodies involved in building regulations, planning, conservation, and stock management.

§26 - In addition, local authorities must be able to show local leadership and support market leaders in the zero carbon economy: Government must review its proposals under the Future Homes Standard consultation, and local authorities should retain their powers to set requirements beyond minimum building regulations requirements (subject to the usual viability testing of their local plans and planning applications). This is a crucial part of helping to develop supply chains and expertise, benefiting the whole market. There is evidence from local authorities that preventing this would increase carbon emissions, compared to their current (already tested) plans; we provided more information on this in our response to the Future Homes Standard consultation⁷.

Q9 - What opportunities does this provide to reset the economy to drive forward progress on broader Government priorities, including (but not limited to) Net Zero, the UK outside of the EU and the 'levelling up' agenda? What should the Government do to ensure that delivering on these priorities does not exacerbate the vulnerability of

³ e.g. programmes led by Urbed, Carbon Coop, Retrofit Works and the Retrofit Academy Centre of Excellence

⁴ [CIBSE response to consultations on Changes to RHI AND to Future support for low carbon heat, July 2020](#)

businesses, consumers and communities/workers that have been impacted by COVID-19?

§27 - The current period of lower economic activity, and the months ahead, provide a number of opportunities to reset the economy around a zero carbon agenda, as well as contributing to the levelling up agenda:

§28 - Developing skills for low-carbon retrofit and heat:

- Mass low-carbon retrofit of the existing building stock will require huge development in the skills, expertise and capacity of supply chains, in order to meet objectives and not lead to unintended consequences. These supply chains would be required throughout the country, providing jobs across the UK.
- There is an opportunity to start this now with furloughed and unemployed individuals, through a programme of training and competence in retrofit, low-carbon heat, and other skills for a zero-carbon economy. The reset and reinvention phases of the CLC recovery plan offer the chance to address these needs.

§29 - **Developing action plans:** the current period can be used to prepare and review plans in order to put climate mitigation, adaptation and biodiversity at their heart, to be ready when the economy starts again. Examples include the preparation of local regeneration plans and publicly funded works.

§30 - Using opportunities to carry out works, and pre-empt post-lockdown effects:

The current period of lower activity, including reduced road traffic, offers opportunities to **carry out works with less disturbance than usual**. This should include the creation of improved walking and cycling routes, urban tree planting and other greening interventions, which are necessary to climate, environmental and health objectives, and will help avoid a post-lockdown “rush to cars” as populations are reluctant to use public transport, and carrying capacity is reduced due to distancing measures. There are already many examples of this happening abroad as part of strategies to also improve the quality of urban centres and their attractiveness to visitors (e.g. Milan, Paris, Athens)⁵; the UK should not fall behind.

§31 - Gathering data and lessons from the lockdowns and pandemic response:

- **Data on impacts from lockdowns**, including reductions in carbon emissions, improvements in air quality, noise, water quality etc. This does not mean that action on climate change should assume similar drops in economic activity as during the lockdowns, but there are some opportunities to test assumptions and improve models e.g. on the reduction in air and noise pollution achievable through reduced traffic.
- **Lessons on behaviour change:** there are limits to comparing the pandemic and climate emergency: whilst the current crisis is immediate but likely to be shorter lived, climate change demands urgent action to mitigate and manage its consequences over many decades, which can lead to a false sense that the issue is not urgent. The pandemic should however provide useful examples about what is possible: how much change is acceptable, how quickly, how sustained, and what public messaging is effective?
- **Lessons on how to deliver fast and effective solutions:** the pandemic offers examples of accelerated processes and public-private partnerships which have driven fast adaptation and innovation, as well as community-led action and networks. These could help inform climate and biodiversity solutions and should be actively learnt from and replicated, as the consequences of climate change could be just as serious as the pandemic and should stimulate equally urgent and accelerated responses.

⁵ The Guardian, “Cleaner and greener”: Covid-19 prompts world's cities to free public space of cars”, May 2020

§32 - **Tackling health inequalities as part of the “leveling up” agenda:** Health inequalities have been highlighted by the pandemic but have long been well-known. These health inequalities are impacted by housing and environmental factors⁶.

§33 - The planning and building regulations system should ensure that all have access to housing and to an environment that is supportive of their physical and mental health and wellbeing, while also providing environmental benefits, with measures including:

- Good access to amenities through walking, cycling and public transport links
- Adequate daylight provision, with attention to lower floors which often have less daylight access while also being occupied by elderly or vulnerable populations
- Protection against overheating risk
- Protection against fuel poverty, tackling fuel costs and home efficiency. This should include a national retrofit programme (see response to Q5). In new buildings, proposals for Part L 2020 and the Future Homes Standard must be reviewed, as they would allow new dwellings with direct electric heating and worse fabric performance than under current Part L, creating a risk of fuel poverty and contradicting energy and carbon objectives⁷.
- Access to good quality and well-maintained outdoor space and green space.

§34 - The long-term impacts of development should be taken into account in planning appraisals (e.g. through health impact assessments or other mechanism), to limit poor development and prevent it from burdening future generations by increasing healthcare costs.

§35 - **Housing:** As changed patterns of living and working emerge post-pandemic, government should review the opportunities this presents: there may be reduced need for new housing in the south, and more need for improving the existing housing stock in the north as people work from home more and need to commute less often. This could align with the leveling up agenda by creating jobs throughout the country and addressing housing affordability, while at the same time tackling the need for low-carbon retrofit of the existing stock.

Q10 - What lessons should the Government learn from the pandemic about actions required to improve the UK’s resilience to future external shocks (including – but not limited to – health, financial, domestic and global supply chains and climate crises)?

§36 - A general lesson is that we need to build our resilience to future crises, be guided by science, and apply the precautionary principle. Later action will cost more and may lead to irreversible damage.

§37 - In the built and natural environment sectors, many measures which provide critical support in extreme situations (e.g. floods) also provide benefits to all, at all times - see recommendations in Q5 on investing in nature-based solutions, with their multiple benefits to the environment and health and wellbeing, and in Q9 on tackling health inequalities which have been highlighted by the pandemic, but well-known for a while.

§38 - We recommend that climate adaptation and resilience, including overheating and flood risk, should be considered in the Future Homes Standard⁷ and its non-domestic equivalent. A key resilience aspect which needs to be addressed in buildings is the risk of overheating. CIBSE have already made a number of recommendations for how this should be addressed, including through building regulations and the planning system⁸.

⁶ [Fair Society Healthy Lives \(The Marmot Review\), 2010](#)

⁷ [CIBSE response to consultation on Part L, F and Future Homes Standard, February 2020](#)

⁸ [CIBSE position statement on overheating, March 2020](#)

Q11 - What opportunities exist for the UK economy post Brexit and the pandemic for export growth?

§39 - We believe investing in skills and jobs for the low-carbon economy will provide multiple opportunities as other countries adopt similar paths in the future.

END OF MAIN SECTION

This response has been produced by Dr Julie Godefroy, Technical Manager at CIBSE.

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APPENDIX A - Policies and incentives which are counter to energy and carbon objectives

§40 - The current **VAT rate applied to retrofit works** discourages energy and carbon improvement works to existing buildings and does not treat new build and retrofit equitably. This should be reviewed. In parallel, increased take-up of retrofit would lead to job creation, increase revenues to HMRC (e.g. income tax, increased spending) and balance lost VAT revenues.

§41 - **The way energy efficiency is treated in business rates should be reviewed:** currently, energy efficiency works can increase property value and therefore business rates, acting as dis-incentive. Instead, business rates should benefit the most efficient properties⁹.

§42 - **Energy pricing should be reviewed to gradually align prices with carbon impact** and incentivise the right decisions. Gas is significantly cheaper than electricity, which can skew investment towards higher-carbon solutions. This must also avoid detrimental effects on fuel poverty – see next point.

§43 – Review the proposed approach to **combustible materials in buildings** in England, which would restrict the application of timber in construction. Regulations should be based on performance requirements; for example, in the case of structural timber, there are evidence-based and risk-based methods available (e.g. BS 8414) to allow its safe use while supporting the decarbonisation of construction.

§44 - **The approach to winter fuel payments should be reviewed:** these total on average £2bn per year¹⁰, and do not address the fact that homes may remain uncomfortable and inefficient. Options should be reviewed to shift finances towards improving the energy efficiency of these homes. We do **not** recommend weakening commitments to end fuel poverty, but instead more effective targeting of support and a better alignment with carbon policies; crucially, this would also bring benefits in comfort and health, often to vulnerable populations such as the fuel poor and the elderly, and in turn offer potential benefits to both the health and social care budgets. The shift should be announced as part of a long-term strategy, to allow organisations and individuals to prepare, and could be staged. A continued commitment to targeted schemes such as the Cold Weather Payments and Warm Home Discount could help in the transition.

§45 - **Permitted Development Rights** allow the creation of new dwellings by conversion of existing buildings without planning scrutiny. This represents a loss of revenues to the local

⁹ [This has been highlighted, among others, by the CBI and House of Commons Treasury Committee](#)

¹⁰ House of Commons Library, Briefing Paper, Winter Fuel Payments update, 5th November 2019

authority (through S106 or other planning contributions), as well as raising serious concerns about health and safety¹¹ and missing an opportunity for applying higher standards. Incentives for construction and the wider economy should favour those that demonstrate they contribute to carbon, environmental and health objectives, not the opposite.

§46 - Include carbon performance and air quality requirements as condition of support to heat networks: this should apply both to new and existing networks, as detailed in the CIBSE response to the recent heat market consultation¹². MHCLG should review the proposed factors to be used in Part L 2020 assessments of new dwellings linked to heat networks (SAP 10), as these factors would allow higher carbon emissions and not represent a like-for-like comparison of carbon performance with other heating systems.

§47 - Review Energy Performance Certificate ratings: these are currently based on costs rather than energy or carbon. Combined with the discrepancy between the relative carbon and cost impacts of gas and electricity, this does not drive the right decisions.

§48 - Monitor and modify the financial support to diesel generation through STOR (Short Term Operating Reserve): In recent years there were concerns that diesel generators were being installed to benefit from payments through STOR, with high impacts on air pollution and carbon emissions. This has been limited through the EU Medium Combustion Plant Directive, but diesel generators still represent a non-negligible part of STOR capacity¹³. These incentives for diesel generation must be reduced.

APPENDIX B - Scale of the challenge

§49 - Retrofitting 29 million homes within the next 29 years to 2050 means, on average, completing nearly 3,000 retrofits per day. This is similar to the numbers reached by the Green Deal per year (14,000 homes in 4 years¹⁴).

§50 - In practice, this will require a first phase to grow capacity, to then peak over 1 million (possibly 3 or 4) homes per year. This is similar to the numbers reached by ECO over 5 years, which nowhere near achieves deep retrofit (1,003,300 homes between May 2015 and April 2020¹⁵).

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¹¹ CIBSE Journal, Opinion, September 2019 <https://www.cibsejournal.com/opinion/the-fallacy-of-pdrs/>

¹² [CIBSE response to heat market consultation, June 2020](#)

¹³ [National Grid ESO, Demand side flexibility, annual report, 2019](#)

¹⁴ 2016 NAO report <https://www.nao.org.uk/wp-content/uploads/2016/04/Green-Deal-and-Energy-Company-Obligation.pdf>

¹⁵ Household Energy Efficiency Statistics, headline release June 2020

<https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics>