

Environmental Audit Committee

Oral evidence: Sustainability of the built environment, HC 76

Wednesday 14 July 2021

Ordered by the House of Commons to be published on 14 July 2021

[Watch the meeting](#)

Members present: Philip Dunne (Chair); Duncan Baker; Helen Hayes; Ian Levy; Caroline Lucas; Cherilyn Mackrory; Jerome Mayhew; Matthew Offord; Claudia Webbe.

Questions 1 - 56

Witnesses

I: The Rt Hon the Lord Deben, Chair, Climate Change Committee; Emily Huynh, Technical Adviser for Advancing Net Zero, UK Green Building Council; and Dr Tia Kansara, Entrepreneur and co-founder, Kansara Hackney Ltd.

II: Jane Anderson, Board Member, The Alliance for Sustainable Building Products (ASBP); Dr Danielle Densley Tingley, Senior Lecturer in Architectural Engineering, The University of Sheffield; and Phoebe MacDonald, Senior Policy and Public Affairs Adviser, Royal Institute of British Architects.

Written evidence from witnesses:

[The Alliance for Sustainable Building Products \(ASBP\)](#)

[Dr Danielle Densley Tingley, Prof Buick Davison et al.](#)

[Royal Institute of British Architects](#)



Examination of witnesses

Witnesses: Lord Deben, Emily Huynh and Dr Tia Kansara.

Q1 Chair: Good afternoon. Welcome to the Environmental Audit Committee where we are holding our first oral evidence session in our inquiry into sustainability of the built environment. We have received a lot of interest—I think over 140 written evidence submissions so far. What we are endeavouring to do, in this, our first session, is to take an overview of the UK built environment and sustainable building policy before getting into some of the key topic areas for the inquiry in this and subsequent sessions on whole life carbon, embodied carbon and the way the planning system influences the construction of buildings with permitted development rights and Government incentives regarding new build and retrofit of our buildings. That follows our inquiry, which we reported on in March, on energy and efficiency of existing homes.

We have two panels today and I am going to start by introducing our panellists for our first session. I would like to start with Lord Deben, John Gummer, who is Chair of the Climate Change Committee. Welcome, John.

Lord Deben: Thank you. Obviously, the Climate Change Committee is very interested in this subject because we see this as one of the major areas that we have to put right if we are to meet our statutory requirements of net zero by 2050.

Q2 Chair: Thank you. We are also joined by Emily Huynh from Advancing Net Zero at the UK Green Building Council.

Emily Huynh: I am from the UK Green Building Council. We are a charity with nearly 600 member organisations spanning the entire built environment value chain, so ranging from product manufacturers, engineers, developers, lawyers and local authorities to banking and investors. We represent the voice of the industry's current and future leaders who are striving to conform to change for the built environment.

Chair: Thank you, Emily. You may need to sit a bit closer to your microphone as you weren't coming through completely clearly, but I think we got the gist. Thank you. Welcome also to Dr Tia Kansara from your own consultancy.

Dr Kansara: Hello, everyone. Today I represent the UK's first and oldest community architecture and sustainability firm, Kansara Hackney Ltd, together with Replenisher, the climate resilience and adaptation consultancy that supports Government and businesses on their climate strategy, risk, and investment. I am an economist with a doctorate from the UCL Bartlett on building performance and evaluation. We are keen to implement positive feedback loops to improve the impact of Government strategies on the built environment.

Q3 Chair: Thank you very much. I am going to start with a question to Lord Deben. You have mentioned, John, that the CCC sees it as critical that the Government take the right policy initiatives and send the right signal



HOUSE OF COMMONS

to both the public and the private sector over decarbonising the built environment that we live and work in. You published a report on “UK housing: Fit for the future?” a couple of years ago. How would you rate the Government’s response to that report so far?

Lord Deben: The response, in the sense of promising to do something about it, was perfectly all right. The fact is that they haven’t done anything about it. We are still waiting for the Future Homes Standard, which is a key part of that, and we are still worried that they do not seem to have understood the importance of embedded carbon, which, after all, is a very significant amount of the carbon that is created in these circumstances.

We have this curious situation in which we were told that the document was going to come into operation by 2024, and then between the publication of the press release and the publication itself it became 2025 again. We don’t even know the date that it will come into operation. I am very concerned about that, because house building companies have a long history of explaining why they cannot do things because they have not had enough notice. Therefore, the longer this goes on, the less likely it is that we will get the full-hearted support of an industry that, frankly, has not had a good history in this whole area.

Q4 **Chair:** Is there any evidence that the building industry is moving faster than the Government and adopting the sorts of standards that will allow current homes to be built to a low carbon or zero carbon basis?

Lord Deben: There is no evidence that they are adopting it, but there is certainly a good deal of work being done by the house builders’ organisations. Again, within that, there is some evidence that some companies have been seeking to slow the whole process down. Of course, we have a backlog, which is very serious. Since the Government of the time reversed the policy on zero carbon houses, one million houses have been built, all of which will have to be retrofitted.

That means, of course, that the house builder has passed the cost of this change onto the person who has bought the house. I find this frankly scandalous, because if the house builder had met those standards in the first place the cost would have been very significantly less. Indeed, it may have been nothing at all, because it is very likely that any additional cost of that sort would have come out of the cost of the land. As you know, the land cost is really determined by the end price and not by any internal land pricing, because of the difference between the cost of land if it is for agriculture and the cost of land for development.

Q5 **Chair:** Through your work do you have any clue as to why this standard has been deferred an extra year to 2025?

Lord Deben: I can only talk of my own experience of having been the Secretary of State responsible for that. The house building fraternity have never been very willing to accept anything new and there is a real issue, now particularly, of the fact that many of them are land speculators in



the sense that they buy land up for several years and seek to gain value on that. The trouble with that is, if you build a better house, you cannot take the extra cost out of the land price because you have already paid it. Therefore, there is some protection that they are after—trying to protect what is important for their accounting and their share price.

Q6 Chair: That is intriguing. I am going to come on to the other witnesses in a moment, but one more question from me.

We did a lot of work, as I mentioned in my introduction, on retrofitting for insulation and improving energy efficiency. Do you think that the delay in the Heat and Buildings Strategy can be explained by anything other than confusion within Government about how they are going to tackle this enormous challenge, which is frankly bigger than the Future Homes Standard that you have already identified?

Lord Deben: Of course, it is a very big issue. It is already true that certain sections of the press have spent time explaining how very expensive it is going to be for individual people. Secondly, there is a long history in all political parties of failing to find a way in which they can help people make these changes themselves. I recognise that. No one is undermining the fact that this is not easy.

The problem, Philip, is very simple. It is one you have drawn attention to yourself in the past: the more you leave it, the more expensive it becomes; and the more you leave it and the more expensive it becomes, the more difficult it is to make the political decisions that you need to make. Yet you cannot do what we are committed to—either the 68% reduction by 2030 or, indeed, the bigger reduction by 2035, or indeed meet net zero, all of which are either actual law or semi-law—unless we get this under control, so it is very urgent.

Q7 Chair: Thank you. I am going to turn to Emily, if I may, to get a sense from the architect community or the building council you represent, about the extent to which sustainability is something that they recognise, picking up John's challenge that the builders have an incentive not to build to a new standard. Is that a fair criticism?

Emily Huynh: Sorry, can you repeat that last bit?

Chair: Lord Deben has indicated that the construction industry has a motivation to delay improving build quality to make new buildings sustainable for financial reasons. Do you think that is a fair criticism?

Emily Huynh: If you look at where sustainability should be factoring within a building's life cycle, it can be broadly broken into three stages. First is the product and construction stages, so that is everything to do with the raw material extract, transportation, manufacturing, and the construction process for a building to actually be constructed ready for handover and use.



The second is the in-use stage, so that relates to all operational energy use, water use and anything related to the operation and maintenance of the building itself. Thirdly, you have the end-of-life stage.

When you look at the building regulation itself, it currently only covers a part of the in-use stage, which is the regulated energy element. It doesn't include unregulated energy, which relates to all of your appliances, such as IT equipment, lab equipment, fridges and so on, which provides that more accurate reflection of how a building is used and how much energy it actually consumes for operation.

Critically, there is also nothing in national policy that requires embodied carbon emissions to be measured, let alone reduced. So, if there isn't that sort of direction and guidance from national policy, you can understand how there are developers that are being hampered by that on a national scale.

Q8 Chair: Thank you. Dr Kansara, what is the best practice that you witnessed within the construction and the architecture community on considering how sustainability gets built in? Again, the same sort of question that I was asking just now: do you think that the community that you advise have got it and are trying to introduce sustainability? What is it that is holding them back at this point?

Dr Kansara: Yes, a really fantastic question. I think on one side you have a disaggregation of all of the experience. The institutional memory that has been invested in and subsequently lost through decades of feedback analysis on the built environment is actually quite striking here.

Since about 1992, in terms of best practice, you could have a look at Energy Star in the US, and its partners, which have helped American families and business save up to 5 trillion KWh of electricity and to avoid more than \$450 billion in energy costs. These are huge numbers especially when it comes to climate mitigation. This could achieve just for the US something like 4 billion metric tonnes of greenhouse gas reductions, so imagine what it could do for us in both the domestic and non-domestic building stock.

Over the lifetime of their programme, every dollar the EPA has spent has a return of about \$350 per business or household for energy saving. You can only imagine the amount of electricity that we could avoid spending just by virtue of having correct metering and correct data analysis, understanding exactly who is managing the building and then creating that into a benchmark scheme that can be integrated across all stakeholders.

Although the EPA has launched this, it has set a standard, but it is a foundation, very much like the SDGs. It is not one SDG at the cost of the rest. It is using the standards as a foundation. I think another really good example of this is the National Australian Built Environment Rating System, which is a federal government initiative to measure and compare



HOUSE OF COMMONS

the environmental performance of Australian buildings, for buildings in use.

It is one thing to design something. It is an entirely different thing to have it operationally match the exact design standards. What we are finding is that there is a performance gap. Of course, there are rating systems across the world that look at a minimum standard for building performance but our biggest challenge in accelerating this within the UK is investing in our asset upgrades, by looking at these retrofits, like John was mentioning earlier. These sorts of building energy efficiency Acts, like they had in Australia in 2010, have led to federal government requiring most sellers of, let's say, non-domestic buildings to disclose a current building energy efficiency certificate.

It is one thing to have a certificate that you can prove the case of, but on a number of occasions in the UK we have noticed that many of these certificates that have been produced and displayed are actually way below, in actual fact. Within the space of the next 20 years or so, we have a huge amount to concentrate on. When it comes to sustainability at large, I think these rating systems are incredibly helpful, but, ultimately, it is on the Government to ensure that end-to-end wholesome approach, because if stakeholders are ignoring certain aspects of regulation, it does not make any sense whatsoever.

For example, in Sweden, some really interesting targets have been introduced. The northernmost territory of Norrbotten is already entirely hydrogen and wind powered. When it comes to the use of fossil fuels in the built environment, for example with Denmark, they don't give any planning permission for any buildings that use gas.

I think there are some very stringent opportunities that we can implement, especially for future home developments where we can develop these in tandem with an ecosystem that supports it.

Q9 Chair: Thank you. I am going to bring in Caroline Lucas in a second but, just before I do, Emily, do you have any examples of where local authorities are leading the way in their own housing stock?

Emily Huynh: Yes, local authorities are increasingly being ambitious in their plans to tackle climate change, and we see that with them declaring climate emergencies, which is indicative of the collective desire to take action, and to take action much faster.

Unfortunately, many local authorities are unsure about how to actually drive this agenda forward and are asking, quite fairly, what policy recommendations they should be incorporating on a local scale to deliver the changes that they want and need to see over an appropriate timescale.

This is why, based on our research and work with our members, which includes local authorities, the UKGBC has developed the New Homes Policy Playbook. This sets out policy recommendations to drive up the



HOUSE OF COMMONS

standard of new homes. It is important to note that it provides two types of recommendation. One is the proposed minimum requirements. This is accessible to all local authorities. They can all introduce it now but, critically, that still goes beyond what is available through national policy now.

Then you have the proposed stretching requirements for those who wish to go further. There are many—for example, the Greater Manchester Combined Authority, obviously the GLA, Milton Keynes and so on. Those stretching requirements are realistic but achievable. They represent that greater level of ambition. We are currently developing a similar playbook resource for commercial buildings to help outline that kind of ambitious policy that you might set in those areas.

What I would say, reverting back to my earlier answers, is that central to both of these resources is that they are shifting the conversation. They are placing an emphasis on not just regulated operational energy, as per national policy, but really looking at the whole picture—so, unregulated energy and how buildings are actually used, but, critically, looking at buildings through a whole life carbon lens to ensure that embodied carbon plays that role in the decision making, so they actually have that confidence that genuine progress is being made.

More generally, I would like to emphasise that there is that desire from local authorities to drive this ambitious change, but there needs to be more support enabling them to benefit from the shared learning, to benefit from resources and to have that mutual confidence. It is also necessary for providing stability for the industry, in terms of what requirements are expected from it across different parts of the country, whether we are talking about now or signposting to a new future. There is a real risk that the UK may pursue a fragmented strategy towards net zero rather than a collective and complementary levelling up as a whole.

Chair: My experience of local authorities introducing planning requirements that are more onerous than others is that the developers tend to go and build their properties where it is more lax rather than more stringent, because the latter will cost them more. I think that is why having a national policy is probably necessary in order to avoid that kind of selective construction.

Q10 Caroline Lucas: I want to come to Lord Deben first, if I might, just to come back to the idea of the whole life cycle of building. Could you say a little bit more about exactly what that entails and, in particular, what the obstacles are to the Government legislating to make it a requirement?

Lord Deben: I think the fundamental obstacle is that it really hasn't got into the centre of the Government's thinking. This is one of those curious things that I really cannot explain. Governments of all kinds have always thought of the building standards as to do with the efficiency of the building in operation. I think it is partly because they think that you can argue that it may be a bit more expensive—although it wouldn't be much, and maybe not at all, by the way in which the house land price works—



HOUSE OF COMMONS

but you are promising people that they will not use so much energy, so it is quite a useful political way of talking about it.

There is no doubt that unless you take the whole, you make the wrong decisions. For example, we really do have to use a lot more wood in our building and so you have to have proper standards, which mean that people are not worried about the safety issue in a post-Grenfell situation. Wood is doubly valuable because it is less expensive in terms of carbon footprint. Of course, it is itself something that is taking carbon out of the atmosphere, and it locks it up for the life of the building, so there is a huge advantage in that.

There is a series of other examples where using the right products will be very much better. It also drives the market, and that seems to me to be the fundamental thing that the Government have not got hold of. If you use this properly you will drive the market and, in driving the market, you will get advantages in price because you will get mass production of these sorts of things rather than harmful things. You will have homes that people can live in with very much lower overheads. You will do the climate change thing that you want to do, but you will do it in the context of having created an industry that is much more fit for the future. In a post-Coronavirus situation, it seems an absolutely win-win position, but you have to get your mind around the fact that this is not just running the building now; it is a question of how you build it in the first place.

On Philip's comment about a national programme, it is necessary because a good local authority—like Leeds, for example, which is doing good things in this area—is constantly hampered by two things. One is that it has to find somebody who is prepared to build on that basis. The second thing it is hampered by is the planning system. We have the ridiculous thing of proposing a new planning law. We don't know what is in it, but we do know what has been discussed. In it there is nothing, as far as we can understand, that will ensure that we build in a way that adds up to net zero. If you just have a planning law of the kind we have been talking about, we just will not reach net zero, because the planning law is an essential part of the way in which the central government enables local authorities to make the right choices when they are asked for planning permission. Without changes there, there is no chance of the local authority being able to make the right decision, as we learned over that coal mine. In the end, Cumbria was perfectly right. Cumbria had nothing in the planning system to enable it to make the decision that you and I would think it ought to make.

- Q11 **Caroline Lucas:** Thank you. If I understand you, there is no methodological controversy over how you might calculate the whole life cycle approach. It is much more of a failure to recognise the significance of it, in a way. If that is the case, I want to ask you, with your knowledge of government, what you think is the best way to try to get them to shift? Is it, for example, to suggest that the Government's own procurement sets some best practice in this area, if there will be too much opposition to moving to legislation straightaway?



Lord Deben: I always start with procurement because it seems to me that that is where the change takes place. The Government should have very much tougher rules about procurement. Of course, that enables them to assess the different ways of measuring these things. Don't let's kid ourselves. It is much easier to measure the way in which a house operates once it is built than to measure the series of individual items that make it up and, indeed, the interaction between some of those items.

So, of course that is true; it is more difficult. But that argues that, for example, in the excellent work that the Ministry of Defence is doing at the moment, which is exemplary, one of the things they could do immediately, because they are dealing with this from a procurement point of view, is to put this as a central part. Government could see that as a test bed and that could be done throughout the whole of government, so that by the time we got to 2025 we could begin to put some of these elements in— tested by the Government and choosing particular ways of doing it—and that then could be rolled out over the next three or four years.

Q12 **Caroline Lucas:** Thank you. I want to come to Dr Kansara and ask a question about the concept of design for deconstruction. Could you say a little bit about that? I know there are often big debates when you hear that a rather rundown estate is about to be demolished, and people are absolutely saying that environmentally that will be a nightmare. Can you talk a little bit more about how you build for deconstruction right from the start?

Dr Kansara: Yes, of course. Basically, this means designing with the end in mind. The UK was the first major world economy to part a net zero emissions target into law. The target that was recommended by the Committee on Climate Change is one of the most ambitious in the world and requires the UK to bring all greenhouse gas emissions to net zero by 2050 but the real issue is—as Parag Khanna mentions in "Connectography"—that geography betrays existential vulnerability.

We can debate about geography, but we cannot debate with nature. What we are realising, with the heightened risk of climate refugees, and changing the face of the planet with even more climate disasters, is that we are not at a luxury of net zero. Net zero means to make a mess in the first place, clean it up and then go back to zero impact. We are not for zero impact. That was yesterday. We must implement net positive. This means that from design to decommission, the Government must take full accountability for what happens. This is the time for radical political leadership, and market forces will follow with due incentive structures. Since the late 1970s the prevailing world view has been to leave things to the market. This results in Government no longer having the technical capacity themselves, but looking to industry for solutions. This kind of industrial approach, which then owns the building performance, reduces the capacity that the Government then have.



HOUSE OF COMMONS

A key lesson is that a lack of commitment, consistency and continuity in policy and strategy sends mixed signals. Such turbulence with policy instruments is detrimental, as it undermines the confidence needed for sustained efforts by multiple stakeholders, such as investors, owners, management, occupiers and facilities management to improve building performance. It makes this long-term planning absolutely impossible. There are three key areas we can concentrate on. The first is consolidating the knowledge domain of buildings in use. This is very much pioneered by the Usable Buildings Trust with Bill Bordass, which offers an authoritative, evidence-based practice to inform policy makers by way of feedback.

One of the biggest issues that we have is that the general public are pretty confused by the plethora of methods and policies that lack a common core, including transparency between design and operation. If I am a client, I have no idea what my building is going to do. I have just paid for it, but it is only in use, once the building is handed over by the architects and construction engineers, that I am looking at the building and thinking, "You said you were going to build it like this, but it is not like that".

Some research that Buro Happold did on a new build of a school showed that by fine-tuning a building, you can increase the energy efficiency of the building once it has already been constructed. There is a huge role in this fine-tuning of the buildings. I feel this is somewhat the practice of ethics and professionalism in order for us to be able to connect that practical in-use building research with—

Caroline Lucas: I am going to have to stop you. Sorry; it is just that we have quite a few questions to go through.

Dr Kansara: Yes, of course. Carry on.

Q13 **Caroline Lucas:** Thank you very much. Emily, I will come to you. Is there anything burning that you really want to add at this point? Otherwise, I need to put it back to the Chair.

Emily Huynh: Yes, I want to emphasise to you the urgency of dealing with embodied carbon. To put it in context, if you have a new building, the carbon impacts of constructing the building, ready for handover and use, are really significant. In some cases, it can account for 50% of a new building's life cycle impacts. The importance of embodied carbon will only increase, because we are already seeing that fabric performances of buildings in use are improving, so the operational energy decreases. Because we know that the electricity grid will be decarbonising rapidly over the next decade, the embodied carbon will increasingly account for a greater share of the overall impacts of the building environment.

This is where legislation needs to change; it really needs to start shifting to that whole life carbon approach where you assess the anticipated operational and embodied emissions over the whole life cycle. It is really critical that you do this at the beginning of a project, whether that is a



new build, a major refurbishment, or just a light-touch retrofit, because that ensures that the overall best combined opportunities for reducing lifetime emissions are identified. It also helps avoid any unintended consequences of focusing on just operational emissions alone, or any other aspects.

Caroline Lucas: Thank you. Sorry to cut you off a bit short, but I know that the Chair will want to move on. Thank you.

Chair: Thank you, Caroline. Jerome Mayhew is picking up where we started on the Future Homes Standard issues.

Q14 **Jerome Mayhew:** Emily Huynh, I will pick up on that last answer you gave about the importance of picking up on embodied carbon in building structures. I will be focusing on the Future Homes Standard, which we know is due to come into effect in 2025. How should the Future Homes Standard be designed to take account of the whole life carbon impact, including embedded carbon of new buildings?

Emily Huynh: We need to ensure that that whole life carbon approach is integrated and inherit throughout the Future Homes Standard. That obviously includes the embedded and embodied emissions, but also the operational ones. To start on operational, the key elements are to set out a trajectory for tightening building regs to ensure that all new buildings operate in 2030 at net zero carbon for both regulated and unregulated. That will involve introducing energy-use targets covering both of these from 2025, and then transitioning towards in-use energy performance as the basis of compliance, so that you are taking into account how the building is being used, how much energy, and the carbon impact of it.

The second is to set out a timetable for introducing requirements for the assessment of whole life carbon and targets for reduction. We appreciate that this is a journey, because we are not starting from the best point. We strongly recommend that the Government should phase in requirements for the assessment of whole life carbon, starting with larger developments. In 2025 requirements should be introduced for all developments to assess and disclose it, and then targets for reduction should be incorporated, again starting with larger developments. This will mean that in 2030 we should be phasing in targets for all developments to make those reductions over whole life carbon.

I also want to reiterate what we said in our consultation response, which is that UKGBC campaigned very rigorously for local authorities to retain the power to set higher performance standards—

Q15 **Jerome Mayhew:** I am going to stop you there, because of the time constraint. Thank you very much for that answer. I would like to turn to Lord Deben. Lord Deben, you have heard what Emily Huynh has said. Do you agree, first of all, and how would you add to that answer?

Lord Deben: I do agree. The thing I would add is enforcement. The problem, Jerome, is a very simple one, and we really are faced with it. At the moment there is practically no enforcement. When a house is being



built the builder goes along to the local authority and says, "I want to build 25 of the Chesters, which is this house, and I have a piece of paper that shows it meets the current regulations". It is very likely that that is the last that is said about measuring up to the standards. There are very few local authorities that have either the will or, indeed, the resources to check on these houses. As a very simple example, if you have a gas condensing boiler that is badly tuned, it is worse than not having the condensing system. There is a law that says the builder has to return to the local authority a note saying that it has been properly fixed. I do not know of one case of a local authority that has checked on that. For me, in the midst of all this the key issue is that when you decide you are going to have higher standards, you put into operation the ability to enforce it.

Q16 Jerome Mayhew: You are nothing if not consistent, because I read the letter that you wrote back in February 2020 where you set out your response to what they should be doing, one of which was to move to measurement of actual performance and not just the use of modelling, which I think is one of the points you have made there. You make a number of other points. You said that the regulations should come in in 2024, and not 2025. You talk about the importance of fabric energy efficiency, which we have not mentioned yet. You said we should not let photovoltaics onsite be used as an offset; they should be separated out. You said we should be focusing on materials emissions as well as the operation emissions. All these things were set out over a year ago. What response have you received? Do you see any movement in the Government in practical terms in response to the very sensible points you make in that letter?

Lord Deben: I always try to give credit where credit is due, and we have been very clear about the credit we have given to the Government for setting the standards and aims that they have. But frankly, no, there has been no reaction. In my discussions with Ministers, there seems to have been no gathering of forces in order to achieve this. That is why I am very worried about the lateness of this document, not least, as I say, because the later it is the more house building companies will say they do not have time to do what needs to be done. Also, because I really do not see any evidence that there is a body of work going on, either to produce this in the form you have been discussing, or—and this is the other point we talked about earlier about local authorities—there is no set up in the Ministry of Housing, Communities and Local Government's that helps the local authorities to make the kinds of decisions you want them to make within an enhanced and improved planning system. That also worries me, because if you do not have that, I do not see how there is a partnership or an iteration between local authorities and the Government.

Q17 Jerome Mayhew: I am beginning to wonder, Lord Deben: do you think we have a fundamental problem with the MHCLG and its approach to planning for carbon net zero in the built environment?

Lord Deben: I try not to step outside my remit. What I would say is in the present circumstances we do not look as if we are getting on



HOUSE OF COMMONS

anywhere like fast enough to deliver what MHCLG has to deliver. One of the things that is difficult about the Government—and this is true of all governments—is that some Departments seem to feel that this is a matter for DEFRA and BEIS, but not a matter for them. MHCLG is central to the achievement of net zero, and unless this is its driving force, we are not going to do it.

Q18 **Jerome Mayhew:** Can you remind us what percentage of our national emissions are associated with the built environment?

Lord Deben: No, I cannot remind you of that, for two reasons. One is that I do not have it in front of me, and I would not like to mislead you. The other thing is it depends on how you calculate it as to what you include within that calculation. What we can say is, now that we have done so much about generation and now that so much is being done about transport, it is the next biggest area that we have to deal with.

Q19 **Jerome Mayhew:** Yes. If we get to the publishing of the Planning Bill towards the end of this year—I think it is due to be published in autumn—and if it still says nothing about how it helps to get to net zero, will that be a massive missed opportunity?

Lord Deben: I think it would be worse than that. It would be a Bill that we could not support. I do not think anybody on this Committee is going to be able to support a Bill that does not face up to the real issue. This is the real issue, and if it does not do that, one must ask oneself why the Bill is being brought forward at all.

Q20 **Jerome Mayhew:** Thank you. My final question is to Dr Kansara. We have talked a little bit about the housing standards that are coming in here; what is good about them and also what is missing in them. Looking around the world, are there other countries where you can see good ideas for housing standards that you would recommend the Government to incorporate into the Future Homes Standard?

Dr Kansara: There are a number of really interesting examples across the world. If you were to take policies and separate them out, you could have a look at the campaigns that the Abu Dhabi Government had implemented through Water Wise and Power Wise to start introducing a variety of behavioural standards indoors. I think you have to try to see this as a holistic approach. One of the biggest challenges we have today is upskilling. What kind of upskilling methodologies have taken place? In Australia, NABERS has been a really big drive to understand exactly where there is a skills gap. How can we fulfil a reflection, closing the feedback loop and initiating these virtual cycles, so that we can improve on what we have created? What John was saying earlier really hits home, because I think it was the 1960s when the first ever publication came out representing the fact that 40% of embodied carbon is within the construction industry. I think we are still balancing on very much the same statistic.

Q21 **Jerome Mayhew:** Just to butt in for a moment, you have referenced Abu



HOUSE OF COMMONS

Dhabi and you have referenced Australia. Are there any other standards out there that you think the Committee would benefit from looking at?

Dr Kansara: Another standard is the Pearl Rating System that has been introduced via Abu Dhabi. I wanted to give you a name for that. I did mention Energy Star; I think that is a very interesting example that we can have a look at where there is an implementation from the policy perspective on the housing industry.

Jerome Mayhew: Thank you very much. Emily, just before I hand back to the Chair, you have your hand up.

Emily Huynh: Yes, I want to add to that. The Australian example that was mentioned, NABERS, was really fantastic in ensuring that buildings rapidly improve their energy efficiency and so on in Australia. But it has now been implemented within the UK in the office sector. I would also point towards that as a really good example to look at and learn from, because it is very much focused around actual, in-use performance and year-on-year improvement.

Q22 **Chair:** Lord Deben, you have just mentioned to my colleague Jerome that you see the role of MHCLG as central if we are going to achieve reduction of carbon from buildings. In our previous inquiry we had the Housing Minister in front of us from that Department, who accepted responsibility for new homes but not for the existing homes, of which there are 29 million, and we are building 1 million new homes during this Parliament. Do you think the Government have joined up their approach to housing sufficiently to be able to do what is necessary to decarbonise existing and new homes?

Lord Deben: Philip, the reason why there are 1 million homes that need to be retrofitted, which should not need retrofitting, is the Government and the Department. They have responsibility for that because they changed the rules, which left those people high and dry, having to make the changes themselves. There can be no question about who has the responsibility. After all, can you name which Department in Government is responsible for houses otherwise? Clearly it is the responsibility of MHCLG, and it needs to be carried through. Somebody mentioned skills. I would like the Committee to ask when the Secretary of State for Education last made a speech about the need for skills for the new green development. Here we are with a new green change, all these houses to be retrofitted, all the work that needs to be done and the jobs that will come from it. I have heard nothing from the Department of Education as to what it is preparing to do about it. This is what I mean about joined-up government and the essential nature of climate change being for all Government and not just a few Departments.

Chair: You have touched on another of our inquiries, which is due to report in the autumn, on green jobs. We have tried to get our heads around that issue as well. Somebody who is very good at getting his head around it is Duncan Baker, who is going next.

Q23 **Duncan Baker:** Thank you very much, Mr Chairman. That was a



beautiful little segue in. I am very pleased that this inquiry is under way. As my colleagues all know, sustainability in the building environment has been my passion for quite a while, and this is my inquiry, which I am so glad that we have taken forward. I want to come on to the Government's incentives on repair, maintenance and retrofit. Without spending time going over old ground, we know that the Green Homes Grant scheme was not overly successful. My personal belief is that we need to be doing far more to encourage retrofitting. We will simply not get anywhere near the position that we need to be in to remove carbon emissions from our homes without some serious incentives, because the current cost implications are hugely prohibitive. With that as a backdrop—this is to Tia Kansara, first—can you give me your thoughts on how the Government should be incentivising retrofit over new build?

Dr Kansara: That is a really good question. When it comes to retrofit, there are certain cost-benefit analyses that can be done. At build, to put in an air-source heat pump might cost you £4,000 or £5,000, but when you retrofit it into the building you are looking at five times the cost. The costing of this kind of technology and/or retrofits primarily depends on each case, each material, and each façade. Yes, you could do solid wall insulation. Yes, you could look at cavity walls and loft insulations. You could look at other fabric measures. You can look at glazing. You can look at heat controls. The fastest way to retrofit a building, if I may say so, is behaviour change. In a number of studies we have found that between 20% and 35% of energy can be reduced inside a building primarily with use. That means that when you switch the building off, that is a saving. If you can implement these behavioural campaigns, that is your first attempt. The second is to look at the alternatives of retrofitting buildings.

Q24 **Duncan Baker:** Okay. That is not an answer I was expecting, but it was very interesting nevertheless. Thank you very much for giving me that. I will come on now to Emily Huynh. The UK Green Building Council has spoken a lot on this and has recommended a number of initiatives. Can we go through your thoughts, but just pick on one taxation change relating to VAT that the Government could make to level the playing field between new build and retrofit?

Emily Huynh: Yes. We strongly advocate changes to the current VAT regime, because it perversely incentivises new builds through a zero rating, whereas VAT is charged at 20% on refurbishment, repair and maintenance. That is why we have been calling for some time for the VAT rate on refurbishment and repair to be reduced from 20% down to 0%. As I said earlier, retaining the existing structure can deliver a really significant carbon saving. Constructing a new build constitutes the bulk of the carbon emissions, and in some cases accounts for 50% of a new building's whole life cycle impact. Consideration should also be given to reducing the VAT on materials and products made of reused materials and solutions based on the sliding scale to reflect the proportion of embodied carbon that is saved across the whole life cycle.



I want to add something quickly. Earlier, there was a discussion around how the retrofit of buildings is a really massive challenge. The average house builder is not going to be in the situation where they will either retrofit or they will build new. For house builders, I strongly recommend that a stamp duty incentive be implemented because that would incentivise house builders to undertake energy efficiency improvements that are essential for the UK to meet its net zero target. To put it in context, the current rates of renovation need to increase by around seven times just to meet that. In turn, that will also help to build confidence for the private finance sector to develop green finance offerings and innovative solutions into the market to enable the mass retrofit of UK homes.

Q25 Duncan Baker: Thank you. Certainly the stamp duty incentive has also been supported by RIBA as well, and I think it is not a bad idea. I will come to Lord Deben now for my final questions. I believe that financial incentives are very much the way forward. From my background before becoming an MP, I know that if you want consumers to move, they tend to move based on what the financial impact is for them. If we moved away from potential VAT changes and financial incentives, what else could the Government do to incentivise rebuild and retrofitting?

Lord Deben: First of all, they really must help people make the sensible choices. Mr Baker, I recently bought an electric car, and I also bought an electric heat pump. Buying an electric car, if you have the money, is the easiest thing in the world, because they know that you want to buy it, and they do it, and they have it all organised. You try buying a heat pump; it is the most complicated thing. The first thing the Government needs to do is to make it easier for people to make these choices when they want to. I cannot understand why we cannot have some standard packages. Think of the number of semi-detached houses in Britain that are, roughly speaking, the same layout. It must be possible to have a package that enables people to make that choice.

My first suggestion is the Government could do a great deal more about information. Otherwise, it is going to be tripped up by those small number of people who are busy trying to stop them from doing anything on the basis that it is too expensive, and we are really frightening people, and that is a serious issue. The Government has to overcome that and answer that question. I happen to believe that we need to change the VAT balance. I have one addition to it, and that is that when people changed a building or did an extension, instead of pulling it down, and suchlike, we should insist upon some improvement in the rest of the building as well as the extension or change. I think that is a necessary part of the mix.

The third thing I would do is really very simple, and that is to say, "We will make it easier for you to do these things, not just by financially providing the opportunities, but by giving you some guarantee of the quality of the people who do it." That is why I come back to education and training. One of the worries I found when I was a Secretary of State



is that older people did not like the Warm Homes programme because they did not trust the people who came into their house to do it. You also have to trust people's ability to do it. There are far too many examples of people putting in, for example, air-source heating who do not know how to do it. We need Government intervention to make people feel confident. Lots of people will do the right thing if it is easy and they have confidence that what they have done will in fact work.

Duncan Baker: I could not agree with you more. Before I came into Parliament I was a retailer, and there is a very well-known saying in retail, "Make it easy for the punter to part with their pound".

Lord Deben: Exactly.

Q26 **Duncan Baker:** If you do not make it easy, they will not buy anything. That is exactly what you have just said, far more eloquently than my strap line. The last thing I want to talk to you about is the Government further increasing investment in extending the life of buildings. That is one other way to look at this problem, rather than rebuilding. What can they do to increase investment in extending the life of buildings? This gets to the very heart of this whole inquiry; we are building buildings and we are rebuilding buildings through materials that are unsustainable. They are not engineered wood, for instance, natural wood-fibre insulation, or lamb's wool. Why are we not taking a leaf out of the Europeans' book, when they are well ahead of the curve on this? Instead, we are using damaging materials, which are causing these problems. What else can we do to extend the investment and extend the life of our buildings?

Lord Deben: First of all, we ought to be much more willing to learn from the rest of Europe. We are inclined to think that we know everything and do not listen to them. That is the first thing we should be doing. The second—many of them are well ahead of us—is a question of procurement. The Government really ought to have a rule that says they are not going to procure new buildings; what they will do is to seek to improve old buildings, so that in each case they are making their contribution to the future of the nation. If they did that they would begin to set the example to other businesses and the other groups that make these choices. We are beginning to see that from other institutions that are making these decisions. The Church of England, the Catholic Church and a whole range of voluntary businesses are going to make these choices in their procurement. It seems to me that it shows very strongly that the Government is not leading here, except, as I say, with the honourable exception of the MoD, which does seem to have this really under control.

Q27 **Chair:** Emily has one final point to make.

Emily Huynh: I do not want to sound like a broken record, but in order to make those informed choices you really need to do that whole life carbon assessment at the beginning. Otherwise, you may not realise that it is effective to do a deep retrofit of an existing building rather than build



new. There will be some minor cases where the opposite is true. Another good example is where we automatically think triple glazing is excellent. But again, there will be cases where the embedded carbon impact of manufacturing and installing that is far greater than the operational savings that you achieve. This is why you should do the whole life carbon assessment at the beginning, so you can make those informed choices, rather than assume there is one size that fits all.

Chair: Thank you. I think there is considerable ignorance, at least among consumers like me, on this panel about how embodied carbon works and how it can be calculated. We are going to come on to that; it is a nice segue into our next panel. I will conclude the first panel and thank our witnesses, Lord Deben, Emily Huynh and Tia Kansara, for your contributions today. Thank you very much indeed. You are very welcome to stay and watch the next session if you like, but there is no need to do so.

Examination of witnesses

Witnesses: Jane Anderson, Dr Danielle Densley Tingley and Phoebe MacDonald.

Q28 **Chair:** I would like to move straight on and introduce our panellists on the second panel. We would like you to explain your roles in relation to your experience for this inquiry, starting with Jane Anderson from the Alliance for Sustainable Building Products.

Jane Anderson: I am a board member for the ASBP and we are a non-profit membership organisation that has a mission to lead the transformation to a healthy, low carbon built environment championing the use of sustainable building materials. I have been working with embodied carbon and the life cycle assessment of construction materials in buildings for over 20 years and I am heavily involved in the development of European and international standards in this area.

Dr Densley Tingley: I am a senior lecturer in the Department of Civil and Structural Engineering at the University of Sheffield and my research and teaching focuses on different methods to reduce the whole life carbon of the built environment, particularly thinking about circular economy strategies.

Phoebe MacDonald: Thanks for having me. I am Senior Policy and Public Affairs Adviser at the Royal Institute of British Architects. The RIBA is a global membership body driving excellence in architecture and we serve our members in society in order to deliver better buildings and places, stronger communities and a sustainable building environment.

Chair: Thank you very much. The first set of questions will be put by Ian Levy.

Q29 **Ian Levy:** A warm welcome to the panel this afternoon. I will direct my first question to Jane Anderson. Jane, could you give the Committee a



rough outline as to what materials can be used to design a low carbon building?

Jane Anderson: Any material can be used to design low carbon buildings and generally using more than one material together is the best solution. It is not just a materials issue; it is very much a design issue. You can do a lot, before you start choosing what type of materials you want, to look at the form of the building, whether you need a building in the first place or whether you can use an existing building.

When you are looking at materials, as Emily said, one size does not fit all. I cannot just say, "Use these materials and that is it. Just design buildings like that; that is always going to be best". It does not work like that. For example, for floor structures, the span and the loading alter what will be the best solution. If you are talking about low spans, timber very generally is a good solution. It changes when you get to larger spans and heavier loadings and there are different solutions. That does not make it easy for you.

Ian Levy: Yes, it is alluding to a more holistic approach for a building.

Jane Anderson: Yes, and you do need to do calculations and look at alternatives.

Q30 **Ian Levy:** Lovely. Thank you very much. Could I turn to Phoebe MacDonald? Could you help us draw a comparison for the Committee's benefit? What are the benefits and drawbacks of using carbon-intensive steel and concrete in the construction industry over other materials such as timber?

Phoebe MacDonald: Building on what Jane said, it was obvious from the first panel that materials have a key role to play in reducing the environmental impact of any building, whether new or existing. When designing and constructing a building, how each material can perform its required function while using the least embodied carbon should be considered. For example, a material could be very low in embodied carbon but it might not be adequate for providing insulation in a house. We need to take a performance-based approach. We need to set operational energy and embodied carbon targets for buildings, so that the built environment can work towards net zero. It is difficult to say one material is better than another, because as the industry continues to decarbonise, materials may have less embodied carbon or new materials may come to market. Simply saying one material is better than another does not take into consideration the nuances required when designing a sustainable building.

Q31 **Ian Levy:** Thank you. You have touched on what a lot of the next question is, but I will direct it to Dr Tingley. Do some forms of timber perform better than others, and how can we prevent carbon being released, subsequently, at the end of a building's life? We are looking at the whole thing, so it is the whole approach.



Dr Densley Tingley: I very much agree with what Jane and Phoebe have said. You have to take that holistic view, so there is not necessarily one timber that is going to be better. It depends on your solution. If you are looking at roof trusses, for example, where you might have relatively short spans and you are not trying to carry much load, sawn timber with minimal processing is going to have less impact than a more engineered timber. As soon as you want a higher rise structure you are going to need to move towards an engineered timber like glulam or cross-laminated timber to be able to take those higher loads and build taller.

Touching on some of what Phoebe was talking about, you then will need to start to combine and look at hybrid structures. If you wanted a tall building, a good example is in Norway, where there is an 18-storey timber building and at those higher levels it is using concrete floors as well as the timber to give the extra mass needed to reduce sway in the building. As has been iterated, there is not one solution. It is figuring out what works best for that building.

Q32 **Ian Levy:** Following on from that, on the use of timber within buildings—I will put this out to anybody on the panel—are the Government taking an over-cautious approach to the fire risk when it comes to the use of timber, or could that be eliminated by treatment of the timber?

Phoebe MacDonald: I think the Government need to do more research into the use of timber in external walls. We need more data, more evidence, to understand how the timber reacts when subject to real fire loads.

Dr Densley Tingley: To add to that, I think it is absolutely about more evidence and looking to other countries. Lots of other countries are building high-rise in timber. I do not believe they are building unsafely, so what can we learn? Do we need more regulations? Is there detail that we want to be more precise about and is extra research needed where we do not know—where we have that uncertainty—to make sure we can build low carbon and safely?

Ian Levy: Thank you. Jane, did you have something?

Jane Anderson: No, that is fine.

Ian Levy: To me it makes sense that we learn from other countries, people who have been building these buildings for a long time. Thank you for your answers and I will hand back to the Chair.

Jane Anderson: You did ask about end of life of timber. Do you want me to come in?

Ian Levy: If you could, yes.

Jane Anderson: What commonly happens to timber at the moment is that less than 1% goes into landfill. A lot of it is used for energy recovery and recycling, so it is going in to be used for particle board and to be used again in buildings. From my point of view the best environmental



HOUSE OF COMMONS

option is to recycle it back into building products, and reusing it would be even better, because then that timber is transferred to the next product cycle and kept out of the atmosphere. It is a concern how much timber is being used for biomass energy because personally I do not think that very much good comes out of that.

Ian Levy: Thank you very much. I will hand back to the Chair.

Q33 **Chair:** In relation to the increasing use of timber in buildings, does the tragedy at Grenfell and the concern about flammable building materials cause any second thoughts about its use? Are any of you able to address that?

Jane Anderson: I think the insurance industry is very much driving what is happening. It is generally the case that architects are unable to use timber now because insurance will not cover it. I think there is strong interest in using timber because of the environmental advantages that it provides, so I do not think it is a lack of desire to use it.

Q34 **Chair:** That is quite a considerable inhibitor. If buildings cannot get insured because of the cladding material, they are not going to get built that way.

Jane Anderson: It is a huge inhibitor, yes.

Chair: Okay. Perhaps that is something we ought to look at in a later session. I would like to move on to Helen Hayes to pick up on the embodied carbon points that were being made in the previous panel.

Q35 **Helen Hayes:** My first question is for Danielle Densley Tingley. Could you explain to the Committee, for the record, what embodied carbon is, and why it is important to take it into account in construction?

Dr Densley Tingley: Embodied carbon is essentially the carbon footprint of a material, and that means it is all the greenhouse gases associated with the extraction, manufacturing, transport, maintenance and the end of life of the material, so pretty much everything that is happening in that material's life is associated with its embodied carbon.

It is important because it is making up an increasing proportion of the whole life carbon of our built environment. This is partly due to decarbonisation of the grid, which is reducing operational emissions, but also drive for new infrastructure and new homes is going to keep pushing up embodied carbon, unless we have legislation to drive it down and at least be measuring it in the first instance.

Q36 **Helen Hayes:** That is helpful. Jane Anderson, what methods are available for accounting for embodied carbon?

Jane Anderson: A suite of European standards have been adopted as British standards and cover the sustainability assessment—the assessment of environmental, social and economic impact—and they all use the same framework. These standards are what are used to measure embodied carbon, which is just one of those environmental indicators



over the life cycle of buildings and infrastructure. These are the same standards that are being used in regulation in countries such as France, Denmark, Finland, Sweden and the Netherlands. The Netherlands has been regulating embodied carbon since 2012. It is the same set of standards.

What is required on top of those standards is a national approach to pick, for example, how many years you want to assess a building over—in Europe they normally take 50 years; in the UK we normally assess over 60—as well as what typical transport to use and what data sources to use for materials. You need a national overlay. That, again, is what is being done in countries that regulate. They also produce national databases, and they generally also then have a support hub that provides guidance and support to people taking these regulations on board.

In the UK we have a methodology, which was developed by the Royal Institute of Chartered Surveyors, called the professional statement for whole life carbon, and this is effectively a national overlay. The only problem is that it was funded by Government through Innovate funding, but it has not been adopted by Government. It could act as a national methodology to enable consistent assessment. Everything is in place. RICS is also developing a national database of generic data and embodied carbon data from EPDs. We have a huge amount of information here and ready that we can go forward with, and a lot of people are already using it. Thousands of people are using whole life carbon assessment tools that follow these methodologies and the RICS methodology already, so there is a lot happening.

Q37 Helen Hayes: Thank you. That is helpful. Phoebe MacDonald, and then Danielle Densley Tingley, do we have consistent application of methodologies at the moment and, if not, how can they be applied consistently across the sector? What are some of the problems and the risks if inconsistent methodologies are used?

Phoebe MacDonald: At the moment there are lots of different tools. At RIBA we suggest what Jane has suggested, namely that our members follow the RICS guidance. Not having a harmonised approach can lead to different results for very similar buildings, which from a client perspective makes you wary about undertaking a whole life carbon assessment or an embodied carbon assessment, because you do not know what result you are going to get. You could get a great result or a not-so-great result.

We need to have a consistent and reliable approach to make sure that we can embed embodied carbon measurement within the built environment.

Dr Densley Tingley: To add to what Jane was saying, there is a consistent methodology and from a structural perspective the IStructE has released a guide that builds on the RICS guide to make that even more specific for structures and give recommendations for some of the data that you might use, because the choice of dataset sometimes is going to give variation in the results.



HOUSE OF COMMONS

For me, the critical thing for consistency across the sector is transparency, being as clear as you can be about what approach you have taken and what data you have used. Then you can look at the database that RICS is developing and that Jane mentioned. If you know what data have been used and if you know what approach and what life cycle stages have been looked at in the study, you can then fairly compare different projects that have done assessments and start to get a feel of what good looks like, and that is what is critical here. It is not just measuring it. It is then translating that into change, so we need to know what good looks like and how we can then drive down emissions in the sector.

Q38 Helen Hayes: Thank you very much. My final question is for Phoebe MacDonald. What would be the most effective policy mechanism or regulatory drivers to ensure embodied carbon is properly considered in the development process? I am thinking about something that should be a requirement at the planning application stage, something that should relate to the processes and decisions around demolition, something that should apply to building regulations. What are the stages of interventions that we need?

Phoebe MacDonald: It would be great to see embodied carbon considered at the outset of a project, as it should be, but we need Government to embed it within the building regulations. We need Government to acknowledge the importance of embodied carbon and to set targets that are ambitious and help drive down carbon emissions. The building regulations are a good place to include it because they set the minimum standard. You can do better, but they are what everyone looks to as the bare minimum, so they are a good place to include it. As was said in the first panel, local authorities have different levels of ambition. While it can be great to include embodied carbon in the planning system as well, it could potentially mean that just down the road you have a very different standard to what you have around the corner, whereas the building regulations apply to everyone. That is where I would recommend it being placed.

Jane Anderson: I want to highlight that we do have local authorities such as the GLA who have introduced whole life carbon assessment as part of their planning for larger developments. Until it becomes regulated and those limits come into place, I see that planning is a good place for people to be in advance of that.

Another thing that could be used is requiring a retrofit plan before people demolish buildings, basically asking them to demonstrate why they could not retrofit.

Dr Densley Tingley: I want to reinforce what Jane was saying there. What they have done in Greater London is ask for circular economy statements at the planning stage, which is essentially asking, "How are you reducing waste from your building across its life cycle?" so if you have an existing building on site you should be doing as Jane says and



asking, “Why can you not retrofit it? Is there a good reason why you have to take that building down?” If you do not have an existing building on site, look at how to design the building to reduce waste in the future, through ideas like design for deconstruction, which was mentioned in the first panel, or design for adaptability, so the building can change use over time, for example. I think we need both circular economy statements and whole life carbon as dual mechanisms that sit within planning initially and then building regulations to say, “This is your target.” I think you still need the calculation at planning so that people have done those calculations at an early stage.

Jane Anderson: I have one other thing to add. Buildings are a big source of embodied carbon but infrastructure is another. Planning there is the way to limit embodied carbon in infrastructure.

Helen Hayes: Thank you very much. That is helpful. I will pass back to you, Chair.

Chair: Thank you. That is another excellent segue, Jane, into our next set of questions from Cheryl Mackrory on planning.

Q39 **Cheryl Mackrory:** In the last panel Lord Deben mentioned that MHCLG is central to this issue, and of course that is hugely about the planning system. The Government published their planning White Paper almost a year ago now, so all the stakeholders have had a chance to comment publicly and in private about what they think about that. Phoebe, if I can turn to you first, RIBA’s Head of Policy and Public Affairs, Andrew Forth, came to the Committee last December and mentioned that the focus of the White Paper was not on sustainability. Can you expand on what risks you think the planning White Paper as it stands proposes to sustainability within the built environment?

Phoebe MacDonald: Disappointingly, the White Paper did not mention the global climate emergency at all, which, as was touched upon in the first panel, is quite mind-blowing. These reforms are some of the biggest reforms to the planning system in decades, and they are that once-in-a-lifetime opportunity to deliver urgent change in sustainability and fundamentally address climate change, but the proposals do not do anything to guarantee the delivery of affordable, well-designed and sustainable homes. In fact, the White Paper pits the environment against other aspects of development by suggesting that local plans should strike the right balance between the environment, social and economic objectives, but we know that sustainability experts can help to deliver local plans and improve social and economic objectives while still being sustainable.

What is missing in the White Paper was the fact that even the most sustainable new home, even if it has low embodied carbon and low operational energy, is not sustainable if it is built in the wrong place. If that house requires car use to get to school, to get to work or to get to the shops, and it is not close to public transport, that is not very sustainable. We need to think about the planning system as a whole and



HOUSE OF COMMONS

how it can embed sustainability. We need to think about an alternative to car use, so that means walkable cities or walkable towns and developments close to public transport. We also need mixed-use developments that have housing with shops and schools nearby. We need to think about the impact of climate change and how new homes are going to be resilient to things such as overheating and flooding. The planning system is a way of packaging all that in one and coming up with a solution, but unfortunately the White Paper did not quite do that.

Q40 Cherilyn Mackrory: Can I expand on your point about what happens if a so-called sustainable property is built, but it is not near public transport? How do you account for building homes for local people in rural areas? They cannot always be near public transport.

Phoebe MacDonald: No, they cannot and it is difficult, but that is where the walkability and being able to cycle to places—

Q41 Cherilyn Mackrory: You cannot. Honestly, a lot of the time you will be miles from any of that, so how could you square that circle?

Phoebe MacDonald: I think that is where coming back to the reuse of existing buildings is important. In rural areas if you are building a new development it is very different, but we have a lot of buildings that could be reused to create a lot of the homes that we need, so there is a solution there.

Q42 Cherilyn Mackrory: Danielle, you started on the previous set of questions to talk about building regulations and the planning system. What conditions should be part of planning applications to ensure sustainability is better considered?

Dr Densley Tingley: To me, what we need in the first instance is a requirement for whole life carbon assessments, and I think that is something that we could do relatively quickly as part of planning.

In the longer term I would also like to see regulation on what level of whole life carbon you can hit, similar to how we have operational carbon, but it needs to be for the whole life cycle. That might sit better in building regulations, that you need to hit a number of kilograms of CO₂ equivalents per m², for example. You could quite easily start to legislate for that. There are some nice examples. The work I mentioned from the Institute of Structural Engineers has some nice examples of a structural carbon-rating scheme along those lines with benchmark targets that would ratchet up over time. Start off with something quite deliverable now and as we develop the skills to design better with low carbon materials or low carbon design, then reduce embodied carbon further and further to make sure we can deliver net zero.

Q43 Cherilyn Mackrory: Thank you. Jane, did you have anything to add, and perhaps talk about the balance between what goes in at the planning application stage and the planning system and what might be covered by building regulations?



Jane Anderson: I think at the planning stage, you are only going to be able to make a commitment to try to achieve a certain level or to talk about how your development is sustainable, and how you are balancing, for example, transport and the impacts. My feeling is that if you are building in rural locations and you are building enough homes to count as substantial, then you should be able to add in something to do with transport or reasons why those people are not going to need transport to get to other places. I live in a rural area and we have quite tight requirements in our town as to where you can build, so that you can walk to the town centre.

Q44 **Cherilyn Mackrory:** Phoebe, if the Government proceed with the new sustainable development test for planning, how can this test be designed to ensure environmental protections are not weakened?

Phoebe MacDonald: The White Paper suggests merging the environmental impact assessment and the sustainability appraisal. At the moment they look at two different areas. The sustainability appraisal is a tool used in the planning stage to assess the likely effects against other reasonable objectives, whereas the environmental impact assessment is applied to individual projects that are likely to have environmental effects. In merging these measures, we risk oversimplifying the tests and damaging the environment and ecological standards as opposed to enhancing them. If we are going to develop a new test, we need to make sure that it is based on the UN sustainable development goals and it also must be ambitious, but flexible, to take into account of local differences. It also must be holistic. We must think about the planning system as a whole, building regulations and making a better built environment.

Cherilyn Mackrory: That is great. Hopefully they are listening and we can feed this in, in time for the Bill coming forward this autumn. Back to you, Chair.

Chair: Thank you, Cherilyn. I would like to pick up on the point you were making there, Cherilyn, about rural versus urban. What I have taken from the contributions of our witnesses is essentially that we need an urbanisation policy; in order to meet the standards that you think we need to meet, you can really only do that if you are building in places where there is substantial infrastructure for public transport and the like. Many of the people on the parliamentary side of this panel represent rural areas where we do have towns, and yes, that is where the bulk of development will happen, but we also have villages that frankly do not have access to public transport where there may be some existing buildings. I should declare an interest here. I am a farmer and we have redundant buildings that could potentially be turned into housing, although they would be pretty ugly, and the cost of renovating old buildings is vastly greater than the cost of building new buildings. Would any of you like to comment on how we square that circle? It does not seem to me at this point to reflect the economic reality of the position that people in rural areas find themselves in. Jane, would you like to start?



HOUSE OF COMMONS

Jane Anderson: You could improve public transport rather than just saying it is never going to be there. That is one alternative.

Chair: Perhaps, but public transport generally speaking has been being withdrawn from rural areas since I was a small boy and there is very little evidence that there is the political ability to restore public transport in rural areas to comparable levels with town areas, and it is too far to walk or cycle. Danielle?

Dr Densley Tingley: I think cost comparison is very much about cost saving. Redeveloping an existing building can give you tremendous cost savings, depending on what you are trying to redevelop. I do not think a sweeping statement that it is always going to be cheaper to build new would be fair. It will not necessarily be so. There are some nice examples of where businesses have saved a lot of money by retaining, even if you strip back. So on your reference to the buildings being ugly; it might be you need to strip back a façade, the envelope of the building, but by retaining foundations and the structure you can still retain a lot of embodied carbon and give a building a new lease of life and potentially save some costs depending on the project. I think it is important to consider that.

Chair: It would be very helpful if you have any examples that you can give from your experience of where that can apply. Intuitively, I am not sure. I am sure there are examples, but generally speaking I think it works the other way around. Phoebe, do you want to come in on this?

Phoebe MacDonald: I was going to make the point that Danielle touched on at the end, about saving embodied carbon. If you have existing buildings that could be turned into housing and there is a need and a want to do it in that a certain area, because the building already exists, although it may not be the most beautiful, the embodied carbon has already been used. There may be a cost to bring it up to the right standard, but that is still saving a lot of carbon compared with building a brand-new building.

Q45 **Chair:** Okay. Can I turn to the issue of buildings put up under permitted development rights? This is coming back to an extension of what is proposed in the Planning Bill and how local authorities can try to ensure that we can maintain the sustainability of the built environment through devising permitted rights in such a way that buildings are sustainable? Does anybody have a view on whether that is possible? Jane?

Jane Anderson: It is a matter of concern that permitted development rights effectively allow you to demolish and rebuild without going through any process. That is certainly something that should be looked at with a view to trying to reduce the damage that has in embodied carbon terms.

Q46 **Chair:** Do you think it is different through permitted development rights rather than through planning permission? It can happen through planning permission as well.



HOUSE OF COMMONS

Jane Anderson: Yes, it can but then you still must get permission for the building you are looking to put up. With permitted development rights, you can just knock it down and build something if you wish. I think it makes it easier. There is almost an assumption or presumption that you will knock it down and build something else.

Phoebe MacDonald: The PDR allows building owners to undertake work without the need to apply for planning permission. That means there is no way to monitor the quality, size or sustainability of the homes being delivered via PDR. Any new home and those being produced under PDR should be sustainable and energy efficient. Our homes must be long-lasting, affordable, and contribute to the health and happiness of those who live in them, and that includes being sustainable. PDR is fundamentally changing our building stock without any consideration to sustainability. We need to restrict permitted development rights to make sure that it is a level playing field and that the homes that people are living in are high quality, safe and sustainable.

Q47 **Chair:** But local authorities can set the design standards to which all construction within their area needs to meet, surely. Can it not use the design statement as a means of ensuring that permitted development happens in a sustainable way?

Phoebe MacDonald: There is no guarantee that homes delivered through PDR will be sustainable because there are no checks and balances.

Q48 **Chair:** Are they not subject to building regulation approvals?

Phoebe MacDonald: From my understanding, no.

Chair: I do not know if anybody can answer that. I think building regulations apply to permitted development, but I may be wrong. Perhaps we can take that up in another session. Danielle, I think you wanted to come in?

Dr Densley Tingley: Yes, I want to add to the point that was made earlier about demolishing buildings. If a proposal is going through the planning system, authorities could say that if you have shown you cannot adapt an existing building, then it would be right to demolish it, but could then ask through mechanisms like a circular economy statement how you are going to reduce the waste coming out of the existing building to ensure it is not going to landfill and that it is being reused or recycled. You do not have that lever with permitted development. You could knock a building down and do what you like with the waste, and that feels to me like a waste of embodied carbon.

Q49 **Chair:** Okay. Thank you. That is very helpful. Finally from me before I hand over to Claudia for the last set of questions, are there any specific measures that you would like to see in revised building regulations to help improve sustainability and make sure that homes will endure for the future? You touched on one issue in relation to permitted development rights, which is that you think the revised regulations should not allow



HOUSE OF COMMONS

buildings to be demolished without there being a clear statement about the waste. Anything else?

Dr Densley Tingley: From my perspective, and for a start, we should not be just talking about homes. I think we should make sure that all buildings endure for the future. Having a circular economy statement that says, “Do you have a plan for how your building can be adapted and deconstructed and reused at the end of its life?” is critical if you are going to build new. Prioritising retrofit—that is going to happen more at planning stage than building regulation stage anyway—to retain that embodied carbon is critical. Then these whole life carbon calculations that we have been discussing across both panels need to be embedded as soon as possible. It should have been done already. We are in a climate emergency. The longer we take to act, the less carbon budget we have and the stricter those regulations will need to be to get us to net zero.

Jane Anderson: I think we must bring forward the timings that were suggested for getting large developments to start measuring soon, then all buildings measuring by 2025 and then not introducing requirements until 2030. It is not as difficult as people make out. There is a willingness to take this on board. If everybody is doing it together there is a level playing field. Part of the problem is that a lot of organisations that are doing this are suffering when going forward because they have to pay to make these assessments, to invest in the staff and training, while lots of other people do not have to do that. They have been regulating this in the Netherlands since 2012 and we must up our game.

Chair: Thank you. Phoebe, finally, and then we will move over to Claudia.

Phoebe MacDonald: Echoing what Danielle said, operational energy targets, not having primary energy as the key metric and having embodied carbon targets—whole life carbon—is important. Also, something that we need to be better at, and this was touched upon in the first panel, is post-occupancy evaluation, going back into a building once it is built and occupied—whether that is a home, an office or any type of building—to make sure that it is delivering the energy efficiency that it was designed to. That it is also useful from a user satisfaction perspective. A building may not function how it was intended, or it might be misused in a way that was not intended, so it could be less energy efficient than anticipated. Going back and learning those lessons and taking them forward is key to making sure all future buildings are energy efficient and serve the right purpose for those who are using them.

Q50 **Chair:** Are you able to comment on the draft National Model Design Code that is proposed in the Planning Bill? As I understand it, it will give local authorities the ability to set a higher design standard than the Future Homes Standard, which would include embodied carbon emissions and include active travel as an element of planning proposals. Does that intent give you much of what you are asking for?



HOUSE OF COMMONS

Phoebe MacDonald: I can come back to you in a bit more detail on this in a written answer, but while it is important for local authorities to be able to go further and faster—as was touched upon earlier, so many have declared climate emergencies and a lot of them with ambitious targets, many much before 2050, so it is important for them to be able to go further and faster—there will always be people building to the minimum standards, so that is why we need to embed sustainability not just in the planning system but in the building regulations and across Government policy through procurement, making sure that Government ensure that any building that they provide funding to receives post-occupancy evaluation, embedding sustainability as much as possible to make sure that we do reach net zero.

Jane Anderson: Phoebe has said it; it is good, but it would be better if we did something at a national level and did not have to let local authorities do it.

The other thing I wanted to bring in was enforcement. There is now a link with what is coming in this golden thread and having to explain exactly what you have built and have that detailed list of exactly what materials have been used. That makes it a lot easier to enforce the assessment of what has been built rather than a design assessment. Effectively you need both but we do need teeth. My understanding is that Part L has very little enforcement. Nobody has ever been asked to knock down a building because it did not perform, and most of them do not perform. We need to avoid that issue.

Chair: Thank you. For the final set of questions, which do take us beyond the domestic dwelling, over to Claudia Webbe.

Q51 **Claudia Webbe:** Thank you, Chair, and it is a great pleasure to have our guests with us today. I want to ask about green infrastructure, and ask how well green infrastructure is being incorporated into building design and development to achieve climate resilience and other benefits. Can I ask Danielle first and then Jane?

Dr Densley Tingley: There are two parts to green infrastructure: the designed-in intent at building level, which might be a green roof or a wall, and a wider network of green infrastructure across a city, if you are talking about an urban environment, which might be parks or playing fields, woodlands and so on. All of those will play a part in the resilience of a city, reducing urban heat islands, flood mitigation and those sorts of benefits.

At the building level, my understanding is that tends to vary quite a lot from local authority to local authority. I do not believe there is anything at national level that is dictating what needs to be done there.

There are some nice examples. For example, in Sheffield we have their Grey to Green scheme, which provides some nice, retrofitted, sustainable, urban drainage features across the city, so not just at the building level but integrated within the city to reduce flood risk. Looking



HOUSE OF COMMONS

at how these green infrastructures can be retrofitted is important. Rather than saying, “Well, we have built that city already. That is done with,” it is critical that we ask how we then integrate that back into our built environment to provide those sorts of benefits.

One of my colleagues who is the expert in this space was looking at the recent work around infrastructure policy and the 25-year plan to improve the environment, and they do mention SUDS—sustainable urban drainage—but in a lot of cases where they talk about green, they are talking about low carbon design and not necessarily vegetation or soil. What we would like to see is a lot stronger national policy around how we integrate sustainable urban drainage and green infrastructure into our buildings and our cities, because you need it at those dual levels, I feel.

Claudia Webbe: Thank you for that. Jane, do you have anything to add?

Jane Anderson: I think it is demonstrated that there are good benefits from green infrastructure and that, as Danielle says, there are some good examples of it, but it is not as widespread as it needs to be. The other things that need to be brought in are looking at maintenance. You need to think through exactly how you are going to maintain things like green walls and green roofs. There is nothing worse than a dead green wall.

Q52 **Claudia Webbe:** I suppose the example in Sheffield is a good one of what can be achieved, but we need to make sure that this is the norm. We know the benefits of green infrastructure and the importance of what it does for climate resilience. When we talk about green infrastructure, we are talking about blue infrastructure as well, and the beauty and the benefits, not just for our health but also for climate resilience, are clear. What more needs to be done to ensure that this is the norm going forward? Phoebe, do you want to come in on this one?

Phoebe MacDonald: As Danielle said, it is quite difficult to incorporate green infrastructure into a single building design. It needs to be considered at a whole site level. A new development having one green wall on one building is not going to have a big impact on the whole life carbon of a building. Green infrastructure needs to come from the client thinking about embedding it from the start.

Touching on what Jane said about dead green walls, you need to think from the outset about the water usage that would be required to maintain a wall like this. We have all been to Hyde Park in summer when it does not look very nice. Do we need to have a bit of a cultural change to accept that maybe in summer the wall might not look as nice as it does in winter? To incentivise and make sure that we get the benefits of green infrastructure we need to think about it from the outset of a project, but also think about it from a sense of sustainability. Is it going to use a lot of water? Does it provide the kind of whole life carbon benefits that we want it to? That needs to be considered from the outset, not as an afterthought. Also, there is the role of the client.

Q53 **Claudia Webbe:** Jane, what is your view on this? I want to move beyond



HOUSE OF COMMONS

the notion of reliance on the individual or the client and be able to be in London, to be in Leeds, to be in Leicester, to be in Nottingham and see the extent of green infrastructure and blue infrastructure being the norm in our cities, in our towns, neighbourhoods and communities. It is such a useful benefit. What do we need to do to bring about that change?

Jane Anderson: I see it as something that councils must have strategies for in their own areas and then take on board how they are going to do it either through development or their own work. I am afraid I do not have an easy solution.

Dr Densley Tingley: I think, as Jane said, it is very much local authority-driven. I believe Sheffield has certainly done a lot within their planning system to encourage you to have a green roof. Part of the challenge is that the roles and responsibilities for green infrastructure are spread across several different stakeholders. It might be the homeowner or the commercial occupier who must look after a green roof. The water utilities, where they are being used for flood alleviation, can potentially play a role, as can environmental regulation. As Phoebe says, a strong way of doing that can be to think through who has responsibility for what, try to simplify that process and say that local authorities can have a bit more ownership of their whole area in terms of green infrastructure, and then see how that can be promoted through development level.

You can see good case studies of where local authorities have had to put in flood alleviation measures because of problems with flooding. It can be worthwhile to look at where good measures have been put in and how they have alleviated problems.

We submitted as part of our evidence how the Welsh Government have a slightly more co-ordinated approach when it comes to green infrastructure, and this does seem to have led to more progress compared to the rest of the UK, so that might be something to have a look at as well.

Q54 **Claudia Webbe:** On those notions of incentives, and I would add regulations, what incentives and regulations are needed to make developers include green infrastructure?

Dr Densley Tingley: My starting point would be to say that in a similar way to saying we want a whole life carbon-type calculation, we want a water management plan for your site. Can you have a site that basically manages all of its own water, so you do not have any water runoff from a particular site—a site that reuses grey water systems and captures rainwater, irrigating said green roof or green wall, and makes sure of doing that in the most sustainable way possible? That would be my starting point, but it is certainly not my area of expertise.

Claudia Webbe: Phoebe, do you want to come in on this?

Phoebe MacDonald: I do not have anything further to add.

Q55 **Claudia Webbe:** I am thinking about our planning legislation and



whether more needs to be done there. What would your message be? If you were to give a message to Government right now about the current planning regulations to help address green infrastructure— notwithstanding all that you have said about who takes responsibility, what happens terms of once the infrastructure is in, who maintains it and so on—what would be your message in relation to the planning policies that are currently going through Government?

Jane Anderson: The costs of not doing this are huge, and I wonder if it is worth involving the insurance industry. They have an interest in this happening. Is there any leverage that you can require? In the same way as insurers are not insuring buildings with timber, maybe they should not be insuring buildings that create huge amounts of runoff and cause flooding. Is that another way to go? Sorry, it is not my key area of expertise at all.

Q56 **Claudia Webbe:** Okay, Danielle, do you want to come in on this one? You can possibly understand that I am interested in the building of our environments—that we do not just see green roofs in London, that we have streams, rivers and green and blue infrastructure built as part of developments and as part of the way in which regeneration and change happens in cities, towns and neighbourhoods. I think that making that the norm, enabling that to happen and enabling innovation to come through that requires some intervention at the governmental level. I want to understand what your thoughts are on this.

Dr Densley Tingley: I think you could have a planning requirement for developments to alleviate either a certain amount, or all, of surface runoff; a requirement for a grey water system, so that they are making use of rainwater or capturing rainwater, even if it is going through showers and fairly soft uses. You can have those systems in place, and I believe some councils will require you to put those in place as part of big developments. I could see that being strengthened at a national level.

Claudia Webbe: Thank you. Chair, I think that is all from me, unless you want to come in on any of those questions. It could be the end of the session—back over to you.

Chair: Thank you very much, Claudia. Yes, you are quite right. I think that is the end of our second panel. I would like to thank our witnesses, Jane Anderson, Dr Danielle Densley Tingley and Phoebe MacDonald, for their helpful contributions this afternoon. We will have our next session on this topic when we resume in the autumn, after the summer recess.