

London Assembly Environment Committee – Thursday 20 September 2018

Transcript of Informal Discussion on Embodied Carbon

Leonie Cooper AM (Deputy Chair): It was really interesting where Simon had just got to, essentially saying that if you take in the whole lifetime - I think you were saying, to paraphrase - and taking the embodied carbon into consideration, as well as the operational carbon that people produce whilst using the building, usually it would probably in most circumstances be better to go for refurbishment rather than demolition. That is what Simon was saying fairly clearly. We have produced some fairly ghastly buildings - let us be frank - where all bets are off and those ones are worthy of demolition because they are probably impossible to live in, in any case, for people and cannot be made decent in terms of heating, dampness and all the rest of it.

Would anyone disagree generally with the overall thrust of what Simon has said, that in most cases refurbishment is better in terms of overall carbon? Does anyone want to arm wrestle Simon on that point? Not literally!

Julie Godefroy (Head of Sustainability Development, Chartered Institute of Building Services Engineers): There is really not enough data. I would like to think so, particularly when we are talking about the heritage estate.

Leonie Cooper AM (Deputy Chair): That also then speaks to Simon's other point, which is we need to do more in terms of starting to gather the data so we are in a much stronger position to answer that kind of question. Is that something where the GLA can really start to help push everything forward so WSP and other companies which work in that space are all working from a level-playing field and everyone knows they need to do more in this area? Can I pose that to both Rhian and/or Anne-Marie?

Anne-Marie Robinson (Senior Policy & Programmes Officer, Greater London Authority): The new London Plan policy will apply to major refurbishments as well in terms of the requirement for a whole lifecycle assessment. We do not see too many of them. They happen more at the non-referable level so we are not going to gather a huge amount of data through that process.

Leonie Cooper AM (Deputy Chair): I know the Mayor has introduced his Good Practice Guidance and is balloting residents who live on estates about whether they would like them to be demolished or not. Is it time for us to have a good practice guidance on full lifecycle assessment of buildings before you even get to the point of thinking about balloting the residents, is that where we should be in terms of carbon if the Mayor is to achieve the goal? I bent his ear before he was even elected about making London a zero-carbon city so it is something I feel very passionately about and I know Caroline does as well. Is that not something we should be requiring people to do?

Rhian Williams (Senior Strategic Planner, Greater London Authority): It is a reasonable consideration. The difficulty with those large sites, when you are talking about large-scale estate regeneration schemes, is that there is a whole host of different considerations going on there. Where density is upping dramatically it will depend on the state of the buildings and on a whole host of things. It is something that is well worth considering as part of that multitude of things.

Leonie Cooper AM (Deputy Chair): The point that worries me is that it is not even being considered as one of a multiplicity of issues at the moment. I can see Julie is nodding. For example, I have a very large estate - some of which is architecturally fantastic - in Roehampton. There are a number of beautiful slab blocks that appear to float above the ground modelled on Le Corbusier, so on and so forth. There are also a number of other buildings that are pretty horrible and not very nice to live in. There is a need to increase density but people are saying, "Do we need to do a full demolition of all of these different parts and rebuild everything, or could we do it, for example, by building floors on top of what is already there?" That would probably then reduce the overall carbon in a way that the demolition will not. Is that something that has been brought into consideration?

Rhian Williams (Senior Strategic Planner, Greater London Authority): On sites like that the new policy would start to apply. The steps we have taken in the new London Plan will start to get that brought into the agenda. It is going to be very site specific. We have listed buildings and all sorts of other consideration on those specific sites. If you want to build on top, how much can you get away with and what is the existing structure. It is going to be quite site specific.

Julie Godefroy (Head of Sustainability Development, Chartered Institute of Building Services Engineers): Leaving aside embodied carbon for a minute, I understand directly from working with the GLA that the policy on operational carbon is meant to apply to major developments, whether it is a new build or a substantial retrofit. However, in practice it is very inconsistently applied in retrofit. Obviously, it is more complicated in retrofit but many, many projects literally strip down the building to the floors and the structure so there is really little justification for not meeting the operational carbon policy. I am not sure it is clear at the borough level that the policy applies. There are big opportunities for making much more out of these major retrofits in operational carbon terms. I know it is an aside but it is a recurring problem that we have seen for many, many years. The policy is interpreted as new build only.

Leonie Cooper AM (Deputy Chair): I know retrofit is not your major business, Robbie, at WSP but I am sure you have views on this because I know you have a number of people who work in the sustainability team globally.

Robbie Epsom (Sustainability Consultant, WSP): Totalling almost 6,000 now, it is growing quickly. We do a lot of whole lifecycle assessments for buildings and also for infrastructure. There is a lot of activity in that space. Probably our biggest project there at the moment is HS2. We are working with them to try to show a 30% reduction between scheme design and detail design, which is very much looking at embodied carbon of the construction. We do similar things for buildings driven by LEED version 4 and BREEAM. That, again, is typical for new builds because they want to get that certification and also because if they are building from scratch there are often a lot of market drivers beyond the framework industry guidance that are already out there.

With regard to retrofitting, I did a bit of research before this and a good example is the United Nations. They did a retrospective study where they demolished their building and replaced it with a similar sized one that was much more efficient. They found it had a payback of between 35 to 70 years before those new operational efficiencies outweighed the capital carbon cost. It does very much look - especially with the grid decarbonising - like it is heading towards that trend of embodied carbon being the big thing and retrofitting being better.

However, London is a very complicated city with lots of varying infrastructure with different time periods, builds, warehouses and various other things. What I would like to see is something – even if it is just for a limited amount of time – that if a building or structure is going to be demolished it triggers an assessment of demolished versus the proposed retrofit, just to see what that is going to look like. Retrofit is quite a broad subject, I do not know where you draw the line. If you keep the façade of a building and build almost a new building behind, is that a retrofit or is that a demolish? It is to look at what is proposed. I am sure there are cases where retrofits could be done very inefficiently, using quite poor materials and designed quite badly. For a year or two years to see what it looks like for London's specific housing stock would be really interesting, but I feel it is leaning towards that retrofit is always better where possible.

Leonie Cooper AM (Deputy Chair): I am going to bring in Jane because I know you have been working a lot on the Crown Estate on this whole point of how you make that decision and how have you done that assessment of what the payback period is. You have probably gone more towards retrofit rather than demolish for very obvious reasons.

Jane Wakiwaka (Sustainability Manager, The Crown Estate): We have quite an extensive sustainability programme that is aimed at reducing overall carbon emissions, which comprises new developments but also refurbishments as well as retrofits. As a long-term landowner and owning quite an extensive part of the West End, we have been doing an extensive amount of work in terms of the refurbishments to make sure the existing buildings we have are performing as efficiently as possible. We have a programme in place that looks at that.

When we are looking at refurbishments and/or developments we have to consider a range of different factors, of which embodied carbon is one. We do have an example where we decided to do a refurbishment of a building and decided to retain the building services for that particular building – from a cost point of view as much as embodied carbon – where it was felt that building would be able to run efficiently and at the same time it would be able to operate in that same way for another ten years. Therefore, we decided to make that decision to not change the building services but we have done other things to make sure the building continues to perform efficiently. We have examples of where we are ensuring it is integrated as part of that decision-making process.

Leonie Cooper AM (Deputy Chair): That would be quite interesting. I do not know whether you have anything you will be able to share with us about how you have made those decisions. I am interested in the UN example as well. That is quite a range of time, is it not, paid back at 35 years or 70 years?

Robbie Epsom (Sustainability Consultant, WSP): I have not looked into it in detail but I would imagine it might be something to do with the decarbonisation assumptions for the grid that they looked at. That is just my theory.

Leonie Cooper AM (Deputy Chair): If you have anything you can share with us that will be really interesting. Sorry, Simon, you wanted to come in?

Simon Sturgis (Founder, Sturgis Carbon Profiling): I am just going to really endorse what Robbie was saying. I completely agree that that should be a starting point, assessing what you can reuse, the structural frame or whatever there is, particularly in London where the height constraints are really not that problematic. I know economics may drive it but I still think with a carbon perspective it would be a good thing to do.

Leonie Cooper AM (Deputy Chair): Do you think anyone has done any kind of estimate of how much of London should be left as it is, retrofitted or completely replaced? That is not the kind of assessment anyone has done. You were saying London is very complicated and difficult.

Simon Sturgis (Founder, Sturgis Carbon Profiling): Probably not since BREEAM.

Robbie Epsom (Sustainability Consultant, WSP): Building on Simon's point, a very key circular economy principle is collaboration. We have seen examples where it has happened almost by accident and major projects in London have collaborated and materials, on a large scale, have been reused. There is a side piece to this of making sure we redefine construction waste as resource unless it is hazardous. One of the key things is making sure these projects, from buildings to major things like Tideway and HS2, are talking to other. Why cannot one building's excavated material become another's infill? Why cannot the materials in a building that are going to be demolished, if it is safe to do so, be used to build another? We could get a collaboration network in London with all these designers, developers and building owners talking to each other and sharing best practice as well of where things worked. People love a good success story, particularly if it saves money.

Leonie Cooper AM (Deputy Chair): Interestingly enough - as part of one of the reports we were just referring to, which Grace Loseby [Former Assistant Scrutiny Manager for the Environment Committee] was very helpful with - we conducted a visit to a company that deals with construction and demolition waste, repackages it all and reuses just about everything. Some of it gets used here and some of it gets sent abroad. The amount of material was quite astonishing. Almost nothing was wasted from the building sites. On the other hand, they did also point out that on building sites in this country an awful lot of things are wasted because we are unbelievably careless, whereas if you went to Japanese building sites the number of pellets or the number of broken pieces of plasterboard would be almost zero because people are incredibly careful in the construction process. It was instructive talking to them about that point, but a lot of it may well be being used. For information, that company was called Powerday.

Are we in a position where you think that because of the decarbonisation of the grid we can end up with buildings that can be so efficient over the whole of their lifecycle that they can be completely zero emission? Obviously, there are some that might even be net zero or, if they are completely covered in terms of a new build, contributing back to the grid.

Simon Sturgis (Founder, Sturgis Carbon Profiling): I was looking at a study done by a group of Norwegians, really aimed at circular economy thinking, which was to do with decarbonisation of the grid. It was for all materials, not just building materials but it certainly applies to building materials. What they were looking at was if you were to produce materials - whether it is for buildings, food, or whatever it was - from zero-carbon energy you would still have significant carbon emissions. The reason for this is because of the way a lot of products are produced, even if you have zero-carbon energy feeding into making them it is just the process of extracting things and turning them into materials. If you have a budget to the end of the century for gigatonnes of carbon allowable from materials to stay within two degrees, it is 300 gigatonnes to the end of the century. It is to the extent that, even with zero-carbon energy, the materials would use up 600 gigatonnes. Therefore, materials remain a problem, even with manufacturing being very efficient and zero carbon. That then leads us straight into reuse, recovery, recycling and all the rest of it to bring that down.

Leonie Cooper AM (Deputy Chair): Interesting, thank you.

Caroline Russell AM (Chair): Thank you. New build is zero rated for value added tax (VAT) and refurbishment obviously pays VAT at 20%. Do you think this is a big factor in the way people make their decisions about whether to refurbish or demolish and start from scratch?

Simon Sturgis (Founder, Sturgis Carbon Profiling): Yes.

Caroline Russell AM (Chair): That goes beyond what the Mayor can do; it is a national thing.

Simon Sturgis (Founder, Sturgis Carbon Profiling): If it is listed, then another issue kicks in.

Julie Godefroy (Head of Sustainability Development, Chartered Institute of Building Services Engineers): That is a recurring industry issue. Also, it depends on who the people who decide are. If we look at homeowners or individual homes, it is very different. There are a lot of studies that show even if there were long-term energy savings etc there are many other factors of why people do not retrofit; hassle, mistrust in builders, etc.

Caroline Russell AM (Chair): Cutting the cost by a fifth might well encourage people to make those investments into retrofitting their homes to make them more energy efficient.

Julie Godefroy (Head of Sustainability Development, Chartered Institute of Building Services Engineers): Possibly. Certainly, for individual homeowners, which are a little bit outside the remit of this policy, it seems we have to address other things to do with behaviour, comfort and maybe showing the co-benefits. We do not necessarily behave financially rationally, there are all sorts of other reasons. Yes, in terms of the wider industry it seems --

Caroline Russell AM (Chair): An issue.

Julie Godefroy (Head of Sustainability Development, Chartered Institute of Building Services Engineers): Yes.

Caroline Russell AM (Chair): Thank you. I am going wrap up now. I wonder if each of you would like to make any suggestions on how the Mayor could best tackle embodied carbon in the London Plan and his other policies, is there something you think the Mayor could be doing to tackle this issue? Simon, can I start with you?

Simon Sturgis (Founder, Sturgis Carbon Profiling): We have probably covered most of the issues, to be quite honest.

Caroline Russell AM (Chair): If you were going to be asked for one thing we have covered during the meeting, what would you ask the Mayor to do?

Simon Sturgis (Founder, Sturgis Carbon Profiling): I would reassess at the end of the project.

Caroline Russell AM (Chair): Great, thank you.

Jane Wakiwaka (Sustainability Manager, The Crown Estate): It is a good question. In our opinion we welcome the revisions that were made in the London Plan. Perhaps, aside from policy, the GLA might have a role in convening different parts of the supply chain to better understand embodied carbon.

Caroline Russell AM (Chair): Thank you. Robbie, one thing that would be good, or two?

Robbie Epsom (Sustainability Consultant, WSP): I wrote down a couple of things. The requirement for the retrofit assessment triggered by demolition is a good point because I do not think it is clear how far retrofits go sometimes, so that would be really useful. Also, some leadership from London in terms of best practice, collaboration and guidance to help us all see what the best practice is. That is something we are really passionate about at WSP so we are happy to keep helping in the journey.

Julie Godefroy (Head of Sustainability Development, Chartered Institute of Building Services Engineers): Someone has stolen my answers.

Caroline Russell AM (Chair): Re-emphasise.

Julie Godefroy (Head of Sustainability Development, Chartered Institute of Building Services Engineers): Disclosure of information. It could be anonymous, but showing what is out there, good and bad examples; public information.

Caroline Russell AM (Chair): Rhian and Anne-Marie, is there anything you have taken out of all the brilliant evidence we have heard this afternoon that you are going to take away?

Rhian Williams (Senior Strategic Planner, Greater London Authority): The whole thing has been really useful for us to hear. I know we have had previous discussions, certainly with Simon, before and engagement with other groups but continuing to have these kinds of discussions will be useful when we are developing the guidance, so I am looking to keep up contact with you.

Anne-Marie Robinson (Senior Policy & Programmes Officer, Greater London Authority): The issue around what gets agreed at planning and making sure that happens in practice is something we definitely want to move towards. That is why we have new monitoring requirements in the new London Plan. Looking at whether the whole lifecycle assessment can become part of that is something we can take away.

Caroline Russell AM (Chair): Thank you, all of you, for your time and your thoughtful contributions. It has been a really interesting session.