

# Embodied Carbon & Procurement – LETI survey analysis

## November - December 2020

Over 140 people responded to a LETI call out and gave their views on embodied carbon and procurement. Many of these individuals have expertise in carbon, with over 50% being sustainability or low carbon professionals and 87% currently implementing embodied carbon action on projects. They represent those working in building and infrastructure and all sections of the value chain, from developers and owners to architects, designers, contractors, consultants, and manufacturers. It is from their expert views we have been able to provide a snapshot of how embodied carbon is currently managed within the procurement process:

### There are multiple barriers to embodied carbon in procurement... but they can be overcome.

**Table 1: Analysis of all respondent comments**

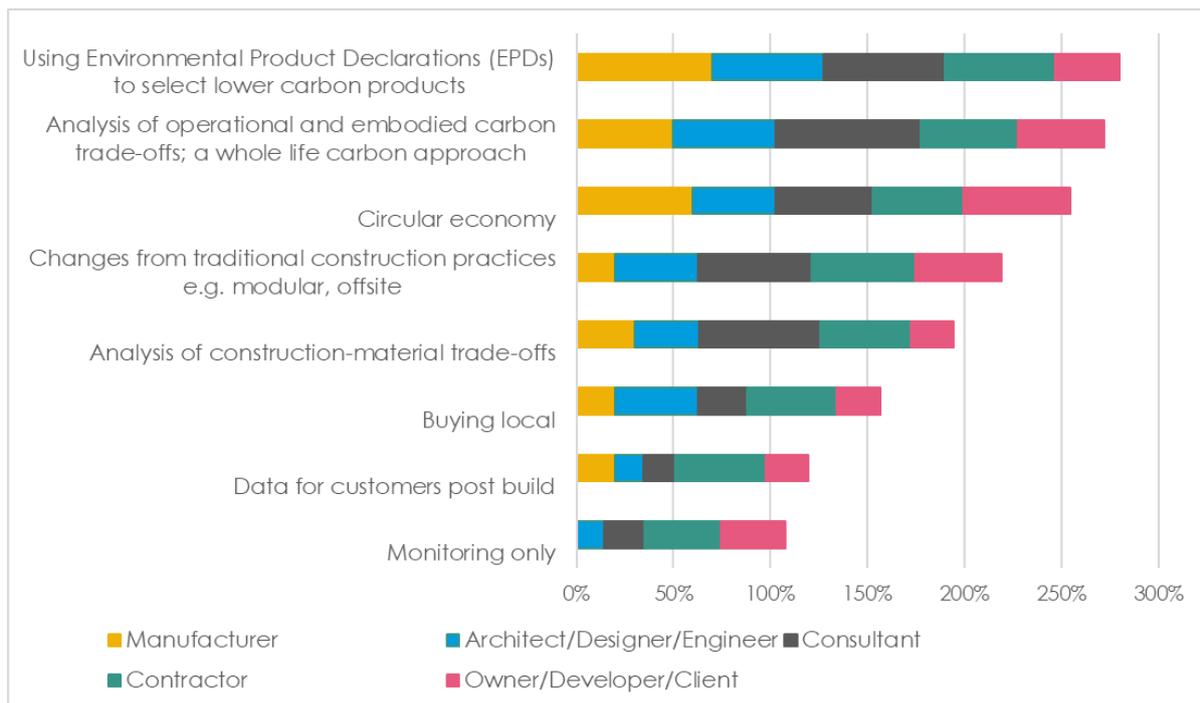
36% said it was about limited knowledge across the value chain.	Lack of performance standards and data, including prices (12%) continued to be a problem.	no engagement at design stage/no client requirements (13%).	There was also a perceived issue of risk around new materials (6%), which may also link to concerns over higher costs (16%).	There is also a fear from clients that the supply chain will not know how to respond or that setting targets will disqualify certain suppliers.
<p><i>"A common framework to embodied carbon assessment at the building component level doesn't exist (specifically facades). We collaborate with our partners, suppliers, consulting companies to set our own framework".</i></p> <p><b>Manufacturer</b></p>	<p><i>"we are collecting embodied carbon project data &amp; creating a leader board to try and introduce some friendly competition within the company to push the engineers to reduce their projects carbon emissions".</i></p> <p><b>Design Team- Structural Engineer</b></p>	<p><i>"We've overcome barriers by ensuring the briefing on a project is clearly defined. Educating clients in to allowing time to propose design options, educating design team to deliver low carbon options quickly, and ensure that our arguments for change are positively presented."</i></p> <p><b>Architect</b></p>	<p><i>"Costs are lower in initial design. We make sure the client brief includes low carbon options - for example an understanding low carbon concrete may take longer to set but focus on contractors finding solutions early rather than asking contractor late on about implication of change to low carbon concrete once outline programme has been set...."</i></p> <p><b>Contractor</b></p>	<p><i>"Being clear on your target and as you process down the process really understanding material section, then good engagement with supplier to understand, say for concrete, what is possible in terms of recycled element"</i></p> <p><b>Owner- Developer</b></p>



## Value chain groups are expected to address carbon through multiple approaches

What surprised us is how many different actions many of the different value chain actors are being asked to undertake (Figure 1). We asked them what type of embodied carbon activity projects they were undertaking (and allowed for multiple answers). It is clear that from their responses that it is a very busy field.

**Figure 1: responses by value chain group to question “Who is setting embodied targets for the supply chain? (please select all relevant answers)”**



(each answer is based on % responses per value chain cohort)

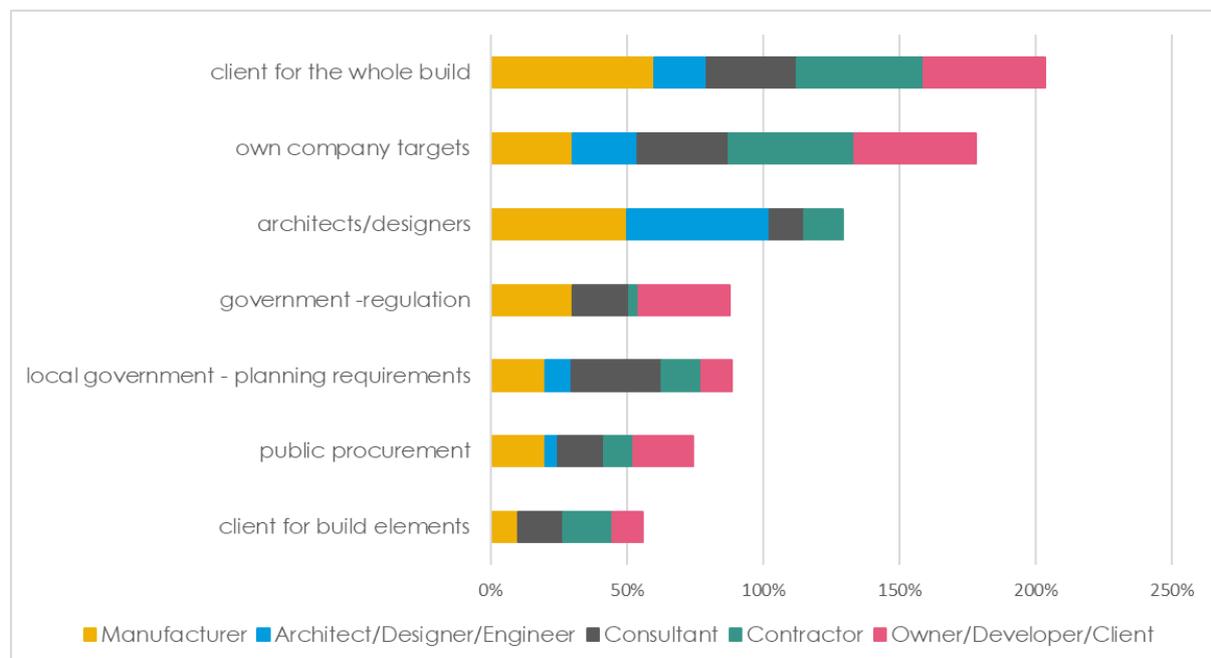
Being asked to provide or use EPDs to identify low carbon products is now the most widely used approach to support embodied carbon reduction. Almost as importantly all the value chain members are being asked to take a whole life carbon approach, with consultants especially seeing demand for this provision. Procurers are asking for non-traditional construction and circular economy approaches, which is impacting on all areas of the value chain. Circular economy achieves the highest response for client/owner/developers across all activities. Consultants are most likely to be asked to work on whole life carbon and material trade-offs, although in the latter consultants also appear to have a role. Surprisingly at a material level, manufacturers are not strongly engaged. Architects and contractors are being asked to consider local procurement more than any other groups. Being asked to provide monitoring information only, rather than reduction action, is low but not an inconsiderable

activity for contractors. Less than 50% of contractors responding were being asked to provide post build information.

## Who is driving embodied carbon in procurement remains unclear.

Whilst most respondent groups see the client driving embodied carbon at a whole build level few see the same position when relating this to specific build elements (Figure 2). Architects are least likely to identify clients as drivers. Encouragingly, more members of the value chain are setting their own embodied targets, this is especially strong in contractors, as well as clients. Both manufacturers and architects acknowledge the importance of architects and designers in driving carbon reduction but only just over 50% of architects/designers felt this is currently occurring.

**Figure 2: responses by value chain group to question “Who is setting embodied targets for the supply chain? (please select all relevant answers)”**

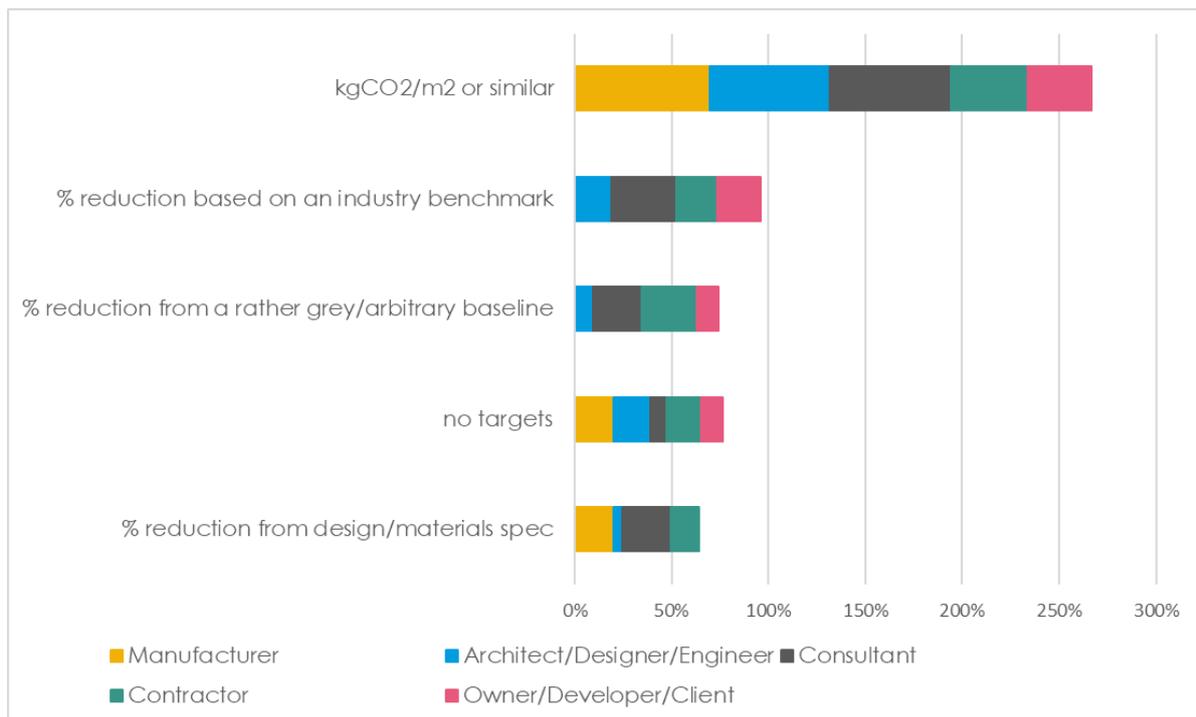


Government regulation is identified as moderately important by manufacturers and clients but weak by other groups. Planning requirements and public procurement are not seen as strong drivers, although around a third of the consultants who responded are more positive about local government action. The message from the industry is clear: the public sector is not leading embodied carbon procurement.

## There is increasing standardisation on embodied carbon target measurement

How embodied carbon targets are being framed through the procurement process is also interesting (Figure 3). Feedback really emphasised the strong coalescing of the industry around kgCO<sub>2</sub>/m<sup>2</sup>. However, there is a value chain divide with the contractors and owner/developer/client only seeing around 30-40% of targets set using this metric, versus the 60-70% elsewhere in the value chain.

**Figure 3: responses by value chain group to question “If embodied carbon targets are being set, how are they framed?”**



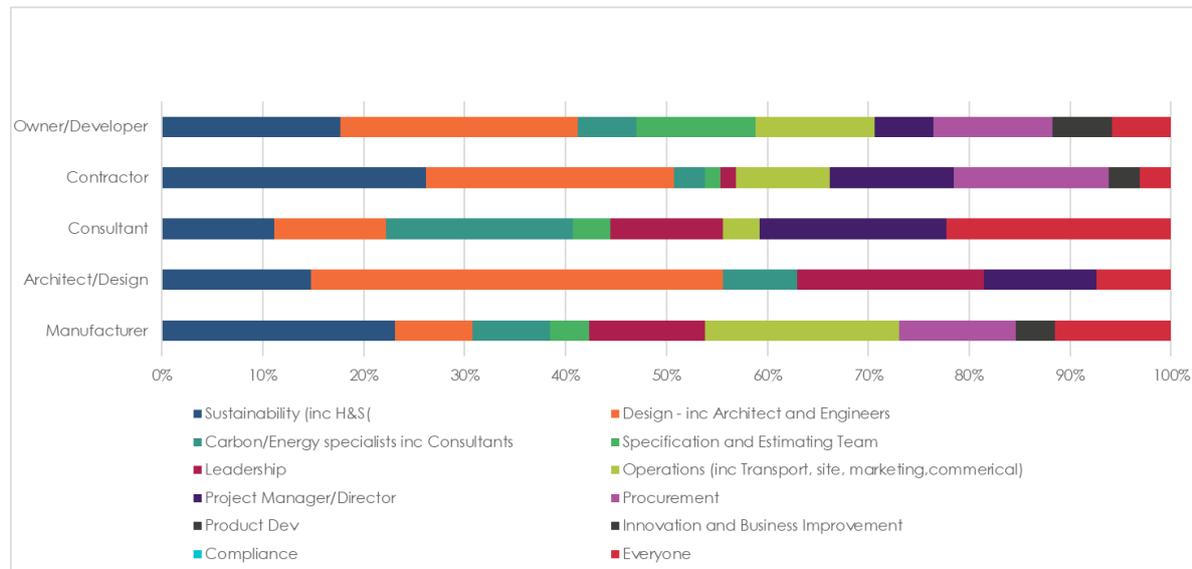
Benchmarks have some traction, especially with consultants, but comments on lack of information would suggest limitations. Contractors are most likely to be asked to work to more arbitrary baselines than other groups and there are still 20% of manufacturers, architect/designer/engineers and contractors who are not asked to work to any embodied carbon targets. The least likely approach is for a % reduction in the materials specification.

Manufacturers are most likely to have worked on projects where embodied carbon procurement has been addressed successfully - the question does not specify if this is at a product or whole project level. Contractors and Architects are able to offer far less positive experience with more than 68% in each group unable to think of an example.

## Who is responsible for managing and meeting embodied carbon targets?

When we asked each group in the value chain about who within their organisations is responsible for achieving embodied carbon on a build, it was clear that all saw designers/architects and sustainability teams as key figures (Figure 4).

**Figure 4: responses by value chain group to question “Which role(s) in your organisation are responsible for managing and meeting embodied carbon targets on a build?”**

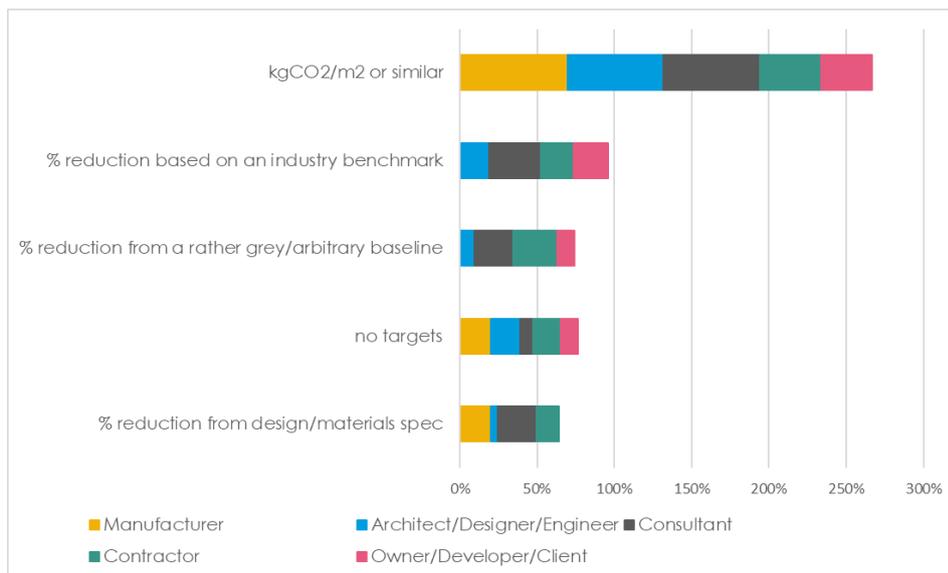


Operations and project teams were represented in all parts of the value chain with operations being unsurprisingly strong in the manufacturer group. In what is a new and developing field the role of leadership was important in the architect/designer/engineer group but surprisingly limited or absent in owner/developer/clients and contractors. Finally, and most importantly for this research, the procurement function, as to be expected, was represented in the owner/developer/clients, contractors and manufacturers groups. However, it was notable that only 16% of contractors identified procurement as important. Owners/developer/clients were more likely to see the importance of their specification and estimating team, something that needs to be further developed. In contractors this team appeared to play little role in embodied carbon.

## Increasing clarity on the target metrics being used

How the procurement process is framing these targets was also interesting, and really emphasises an increasingly strong coalescing of the industry around kgCO<sub>2</sub>/m<sup>2</sup>.

**Figure 5: responses by value chain group to question “If embodied carbon targets are being set, how are they framed?”**



Benchmarks have some traction but are barely ahead of 'no targets'. Contractors are asked to work to more arbitrary baselines than other groups.

Manufacturers are most likely to have worked on projects where embodied carbon procurement has been addressed successfully - the question does not specify if this is at a product or whole project level. Contractors and Architects are able to offer far less positive experience with more than 68% in each group unable to think of an example. When asked about who is responsible for achieving embodied carbon on a build, designers/architects and sustainability teams are seen as the primary groups. Few suggested that the procurement team or those managing specifications were important in this work.

## Driving future change

Figure 6: responses by value chain group to question “What is most likely to help your organisation achieve low embodied carbon ambitions? (please select your top 4 in order of effectiveness, with 1 being the most effective).



This offers the most interesting of our findings. Firstly, there seems to be no appetite or belief in new methods of working such as agreeing to financial incentives or shared risk as part of the procurement process. All parts of the value chain agree that client requirements are important, but especially so for contractors. Specifications are seen as important by manufacturers and contractors, but designer/architects have a very different perspective, with only 8% ranking this issue. Regulation/policy is the topic seen as important by all groups, with architects identifying this as their top approach. Despite the respondents as a group noting the importance of embodied carbon knowledge and skills, manufacturers and contractors see education as a very low priority in enhancing their service or product offer. Best Practice guidance also scores weakly.