

Q&A

1. The targets that you have in place as Costain to become net zero are ahead of governments targets - by 2035 - do you think government's target is lacking ambition?

I think we need to take action sooner. 2050 is ambitious but is it ambitious enough, I don't think so. I think clear and defined interim targets also need to be set - there are already talks of bringing the 2050 target forward and linking to the current economic recovery plans which is driving the net zero ambition in the right direction and moving this up the agenda.

2. How do you foresee eliminating embodied carbon in many of the infrastructure products? How do you get materials to a point that they are net zero?

There's a huge amount of the energy used to fabricate these materials. From Costain's perspective nearly 70% of our footprint is associated to the embodied emissions from materials and predominantly from concrete, steel and aggregate. Therefore, we have focused our plan to tackle in the first instance our 3 carbon intensive materials. That does not mean we are not looking into lower carbon alternatives for other materials but we are ensuring we don't lose focus of the 3 key material emission sources we urgently need to tackle as an industry.

We need to eliminate the emissions associated to the fabrications of these materials by ensuring their production is powered using 100% renewable and sustainable energy sources but we also need in some instances to find low carbon and net zero material alternatives to the current materials used today. For example, making cement replacements or low carbon cements industry standard where applicable. This example requires not only a supply chain able to provide this but also a change in client specifications. We also need changes throughout our value chain to move this from an innovative approach by a few to an industry standard practice by all.

We need to create a genuine circular economy where the recyclability of these materials is a reality. This requires changes to business practices to ensure they drive these cyclical business models that can then be implemented across the value chain. These models will ensure we move away from unsustainably extracting virgin materials.

How do I foresee this happening? A certain proportion of that is actually going to be driven by how we can structure and incentivise our contracts across the whole value chain to adopt this practice. We need we have true business models that translate this into construction and engineering programmes, into how we procure project, into how we set up our supply chains, into how we produce materials etc. For this to become reality for all, it needs to be driven by every stakeholder in the value chain.

3. What is your definition of net zero?

There is a lot of confusion of around net zero. The definition we use is ensuring the reduction and aligning our green gas emission reduction targets with 1.5 degrees emission scenario and in line with the UK 2050 target.

4. Do you feel that there needs to be a fundamental change in designers or consultant attitudes to project delivery to transit to net zero?

Yes, but i also think there needs to be a change across every stage of the lifecycle of an infrastructure project. It's not only designers and consultants that need to change but clients have a major role to play too. For examples, broadening their specifications to incorporate net zero practices such as net zero materials and offsite manufacturing etc. It also requires the supply chain to change to be able to provide and deliver these nets zero practices and materials.

I think ownership is a key element to meeting net zero. It's not just for environmental specialists but everyone is responsible for ensuring carbon reduction is embedded in their work, be that as a commercial lead, planner, engineer, etc.

It's vital we translate carbon into everyone's roles and hold each everyone accountable. So, the designer community have a key part to play in ensuring net zero, but they are not the only ones. Commercial managers, quantity surveyors, planners, quality managers, etc, each has a role to ensure we all work to provide the least carbon intensive solutions possible.

5. Laing O'Rourke use an offsite model and good data on projects they've used it on, do you use similar KPIs at Costain?

We do not have a specific offsite targets within Costain however we have KPIs and design targets focused on the quantity of carbon emissions reduced or altogether avoided from one design phase to another.

5.1 Is that something that Costain would like to do in the future?

Yes, I don't see why not if this is where we identify the greatest area of focus required to drive reductions. As we digitalise as an industry the information and data available to all will enable to pinpoint where we need to target our focus to drive the desired outcomes and further reduce emissions.

6. is there a national / average carbon reduction from using offsite vs onsite: manufacture, logistics and installation? any comparisons you're aware of?

I don't know if there is a national average however there are many instances where offsite is a no brainer there are also some instances where this is not always the most suitable option. It's all about perspective and ensuing we have a whole life cycle view and understanding of our

project to ensure we make the right decisions. Most of the time there's significant carbon reduction associated to offsite manufacturing

7. In the process of promoting offsite as a form of achieving net zero, is there a database of carbon emissions for traditional forms of construction that can be used to evaluate construction projects?

The data is nearly all there, it may not be perfect however there is enough information to be able to help inform our decisions at every life cycle stage. One of the key challenges it is that this data is stored and used in silos. We need to bring it all together in order to have a full picture. The industry has a number of databases that can and are used to compare the benefits of traditional and offsite manufacturing and there is a growing momentum to creating one industry wide database that will enable to map out comparisons between various construction methods, alternative materials, etc. For the case of offsite I am sure a number of manufacturers also have their own databases.

8. Does Costain aim to deliver only net zero carbon projects in 2035 - no matter what - or would it rely on the client readiness to invest in these?

It's not a case of only advising, designing or delivering net-zero projects but ensuring we help all our clients and every organisation in our supply chain to get to net zero. They might not all be in that position that by 2035 they will have 100% of their contracts and projects fully net zero however we will be supporting our clients and supply chain to accelerate and deliver the maximum reductions possible to ensure the industry meets net zero as quickly as possible.

9. What are the characteristics of offsite construction that will bring zero embodied carbon?

Some key benefits mentioned when we reference offsite are usually logistical efficiencies but even the concept of how we design offsite must change to incorporate net zero. Offsite enables to reduce emissions compared another traditional methodologies however that doesn't mean that offsite doesn't need to improve. The methodologies used within offsite construction also needs to incorporate lower embodied emissions from materials and the design itself and not rely on current savings this methodology provides.

10. How do you measure resilience of your built structures?

Understanding the focus areas of where your key carbon hot points sit to ensure you are delivering resilience is key. Using tools such as carbon baselining and life cycle assessments (LCAs) to understand the whole life cycle impacts and benefits of a project, design or asset indicate where you need to target first. The next step is ensuring to keep the focus on targeting the hotspots identified. That does not mean we don't focus on any other areas that also need improving however we are clear to not lose our focus as to where the greatest carbon reductions lie.

What is key in translating climate change and these environmental focus points into our designs, into how we procure, into how we set up contracts so that the efficiencies flow from one life cycle phase to another.

11. The industry as a whole currently has data gaps i.e. MEICA and ICAT data. How are Costain addressing this?

Costain are not looking to reinvent the wheel we, are focused on ensuring to join up the dots where needed and fill in the gaps where needed. We recognise there are numerous tools and databases that all provide great input but it's joining these information sources together that provides the greatest value to ensure we deliver and provide low carbon solutions to all our clients. This is key to ensuring we meet our 2023 target of providing low carbon options to every client.