

Q&A

1. The targets that you have in place as Costain to become net zero are ahead of governments targets - by 2025 - do you think government's target is lacking ambition?

I think we need to do that sooner. 2050 is ambitious - is it too far away? I think an interim target should be set - there are talks of bringing that target forward already. It's driving ambition in the right direction and I believe it will be brought forward.

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 provide to fabricate these materials. From Costain's perspective 70% of equipments is made of materials - major predominance is concrete, steel and aggregate. We focus on those 3 in our strategy. There's eliminating the emissions associated to the fabrications of these - ensuring producing these materials using renewable and sustainable energy sources. It's also finding alternatives to the current sources that we currently use. Opting out of cement replacements or low carbon etc. There's also the whole circular economy agenda where actually the recyclability and number of these materials especially those 3 in particular, there is a cyclical business model that can be implemented, moving away from direct virgin extracts of these materials to be far more into a circular production business models.

How do I foresee eliminating that? A certain proportion of that is actually going to be driven by how we can structure and incentivise our contracts to do this. Until there are business models, and construction engineering programmes and projects have this incorporated into how they procure, how they set up the supply chain, eliminating emissions from the NG section or how a material or product is produced, will be done by the manufacturers but also needs to be enabled by different on the value chain of engineering.

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 that's been set.

4. Do u feel that theres a need to be a fundamental change in designers or consultant attitudes to project delivery to transit to net zero?

Yes but i also think there's need to be a change across every stage not only designers and consultants but clients have a major role to play - if it's incorporating offsite it means specifications of clients accepting offsite as a method and the supply chain needs to have those elements in there.

From a design perspective the carbon discussion has been very focused in environmentally focused individuals and I think the ownership piece of who is responsible for ensuring and delivering carbon reduction is the key one. It's about holding roles and individuals accountable to that. So the designers and designers as a community have a key part to play in ensuring who gets net zero, but they're not the only ones. Commercial managers, quantity surveyors have had a role to play into how we procure and make sure supply chain is providing the lowest solution 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 haven't got specific offsite targets but we've got KPIs and design target around the amount of the emissions reduced or avoided which therefore focuses the drive on offsite by eliminating the requirements for that design altogether. It's not a KPI focused specifically on offsite but on ensuring carbon reduction.

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

Potentially. As we digitalise the whole industry the information is becoming far clearer. I think we'll get to a point where we'll establish how much offsite represents as a total of our design carbon reduction savings etc.

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

I know a few examples but in some instances offsite is a no brainer - in others it's not. In the long term, in the majority of the time there's significant carbon reduction mainly due to the fact that offsite can be standardised and can be replicable. There's gains there.

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 all there, it is just segregated. As we've been digitising we've done a lot of projects from deriving databases and we do have a carbon tool but I'm not necessarily keen to use tools as such because the methodologies aren't pretty similar. What I'm keen to do is joining the dots from understanding those carbon emissions and carbon footprint all the way through a lifecycle emission asset. The industry as a whole is getting to that whole momentum as different organisations become more mature in how we manage our emissions and what that looks like. There are databases that already exist that are able to map out certain types of carbon comparisons of two main construction methods, two alternative materials. We're working towards having an industry wide database but it's not there yet.

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?

2035 is a pre-requisite for the industry to ensure that we get to the UK's targets. It's not a case of only doing net-zero project but helping organisations get to that point. They might not be in that position by 2035 how have 100% of their contracts and projects totally net zero however as we do with our clients we help them deliver the max net zero solutions but also enabling them to drive their ambitions all the way.

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

Benefits of offsite in terms of efficiencies that it provides. It is very much as logistical efficiency but even the concept of how we design offsite has to change to incorporate net zero. Offsite is enabled to reduce emissions compared another traditional methodology. However that doesn't mean that offsite doesn't need to improve. The methodology used within offsite also needs to incorporate and ensure that it takes into account the lower embodied emissions not just the savings compared to another methodology but also the embodied materials it incorporates to its design.

Yes it enables to directly reduce some of the emissions associated to transport logistics but the embodied emissions of around offsite of what they can provide still needs to be worked on and it's getting there. to truly enable net zero solutions offsite needs to ensure the design and materials that it uses are net zero as well.

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

Resilience from a climate change perspective:

- understanding the focus areas of where the key pinch points for ensuring resilience and using tools such as life cycle assessments to understand the whole life cycle benefits - the way we measure is mapping out the key hotspots that we need to ensure we're resilient - it's translating the climate change elements or the environmental focus points into our designs, into how we procure, into how we set up contracts.