

COUNTDOWN TO CARBON ZERO

CONVERSATION SERIES:
NICK HUGHES INTERVIEW



TALKING CARBON ZERO

WE CAN GET THERE BEFORE 2050

“The rail transportation sector needs to embrace its role as a key driver in achieving net zero carbon emissions,” says **Nick Hughes, Sales Director for Hitachi Rail Europe**. We hear him in conversation with **Paul Hirst, Head of Transport at Addleshaw Goddard**.

How big an issue is decarbonisation for Hitachi Rail?

Decarbonisation is one of the top three issues we’re addressing as a business and I’m not just talking about the UK or Europe here, I’m talking globally. On the one hand, it’s a challenge for industry but on the other, it’s a massive opportunity. Here at Hitachi, we’ve been working on battery technology for 17 years – our battery trains have been in operation in Japan since 2016. So we can point to tangible areas where our solutions are already helping to reduce transport’s carbon footprint.

Do you feel you’re getting enough guidance from UK policymakers on the role you can play as an OEM?

Yes, I think we are now. The Department for Transport’s transportation decarbonisation plan clearly identifies the role that public transport has to play in achieving carbon neutrality by 2050. Rail is seen as a solution and this is the role we need to embrace. As a sector, we already have a relatively low carbon footprint and can move large volumes of people around very efficiently. Now we need to step up our contribution to reducing emissions, particularly through our use of alternative technology.

You say that rail is seen as a solution but isn’t it true that the number of journeys made by rail remains a small proportion of overall journeys?

Yes, that’s true but the UK has enjoyed amazing passenger volume growth over the last 20 years – growth that’s the envy of most other railways around the world. Why is this? Well, we’ve managed to create modal shift like no other nation. We’ve done this by bringing in privatised operators who have transformed ticketing, particularly off-peak tickets. Younger people are using rail more because fewer of them own cars. And the older generation are also more comfortable using rail because they’re sick of being stuck in traffic congestion. So we’ve created phenomenal growth on UK railways – probably about 6 or 7% a year, averaged over time – and now, increasingly, we’re looking at rail as a system.

Are people talking about railways as a system more than they used to?

Yes, this is a huge area of opportunity, particularly in view of the structural changes we are likely to see at Network Rail in due course. The interface between track and train – you can’t separate them, you need to think of them as a whole system. That means thinking about electrification in terms of the solutions that are available, particularly with rolling stock. Fleet owners and operators now want to have conversations about rolling stock that can potentially improve our carbon footprint. So the whole thing feels like it’s becoming more joined up.



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Does this mean that industry structures are changing to allow people to come up with holistic solutions?

It’s starting to change. If we are to succeed, we need to collaborate more as an industry and we’re beginning to see this happen across the market place which is really positive.

Let’s talk technology then. In terms of train traction power, do you go hydrogen, do you go battery, do you go electrification?

Hitachi has already trialled the leading alternative technologies in Japan – hydrogen, battery power and hybrid, for example – and we can see that there are benefits associated with each. The advantage of battery solutions is that they can be implemented immediately via retrofitting fleets and can be appropriate in the longer term in places where electrification is not cost-effective or appropriate. Further down the line, however, we believe other solutions, including Hydrogen, will also have an important role to play.

Can I ask a basic question here? When you talk about a battery train, what do you actually mean in terms of Hitachi Rail’s products?

Well, we’ve got two possible solutions. We’ve got a large fleet of intercity trains that are currently in passenger service and potentially we can retrofit this fleet, replacing the generating units with batteries. Alternatively, we can start off with a new train. This would be a battery EMU, offering conventional electric traction where you’ve got overhead line and battery power where you don’t have electrification. These designs are ready and we’re having good conversations about introducing solutions like this in the UK over the next two years.

How are you expanding Hitachi Rail outside of just rolling stock?

If you look at our European footprint, we’ve got a full multi-disciplinary turn key product range – rolling stock, maintenance, digital signalling, new inter-locking systems, ETCS (European Train Control System), ATO (Automatic Train Operation), traffic management, and also data capability from Vantara in the States. So we’ve got the whole package of products that the railway needs which should serve us very well over the next 10-15 years.

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Tell us about your plans to tap into automotive experience.

So we've signed an MOU with Hyperdrive. They have a lot of automotive experience in the north east of England, working with Nissan on their battery products. We're looking to bring some of that automotive experience and knowledge into rail, in terms of the optimum size of battery pack, the performance in terms of operating range for recharging, operational speed and whole life cost. The automotive sector is already half way up the learning curve so we feel Hyperdrive are a strong industry partner who can help set us apart in the market place.

Looking forward, what sort of changes will we see in the UK's railways?

I think the Williams Rail Review will lead to longer term concessions of 15 or even 20 years and that these concessions will align with Network Rail's new structure - the five routes. So the concessions are likely to be bigger and more long term and I think this will bring in more investment and may also encourage rail operators to have industry partners.

If you look at the rolling stock manufacturing sector, I think the consolidation that we've already seen at a global level will continue. Consolidation will also likely continue within businesses, for example, at Hitachi, our rail businesses now sits as part of our wider mobility business.

Looking at the role of the private sector, I think we may see a financing structure emerge similar to the Intercity Express Programme (IEP) that introduces performance incentives and a service-based approach to providing infrastructure and rolling stock. And in terms of the decarbonisation agenda, I think we'll see a new technology fleet of battery or battery hybrid rolling stock coming on to the UK market over the next few years.

What do you see as the main challenges?

Timescales is the big one for me. I think it's important we get some quick wins and that's where the retrofit of the IEP fleet potentially comes in. We need to get the new technology out there and tested and that will give people confidence that there's a place for battery trains in the marketplace. My other key concern is testing. This is always a troublesome area because of course we're trying to run a live railway as well as introduce new technology so there needs to be a balance.

Do you think we can achieve net zero carbon emissions by 2050?

I actually think we can get there before 2050, and rail will definitely have a key role to play in delivering this. Covid-19 has probably accelerated thinking about decarbonisation globally, as both governments and businesses have had the opportunity to think further ahead.

The dramatic changes we have all experienced also make us realise that seemingly immovable barriers can be moved. Let's hope this is one of the more positive outcomes of the pandemic.

