

IMAGINE A WORLD WITH GREEN TRAINS

The future of rail is diesel-free and we're playing our part in helping to bring it about. We are advising on a wide range of sustainable rail transport deals involving bi-mode and tri-mode technology, and stock using innovative regenerative braking – where trains create power from slowing down.



THE CHALLENGE

The Government has committed to rid the rail network of diesel only-powered trains by 2040. But at the same time it has put the brakes on its electrification programme due to major cost overruns and delays.

In the meantime, while hydrogen fuel cell and battery technologies are both accelerating fast, neither is yet sufficiently advanced to replace diesel or electric power. Electric trains powered by overhead lines are still deemed the most efficient – but there's a question mark over the cost-effectiveness of electrifying the whole rail system. So it remains uncertain which solution - or combination of solutions - the industry will adopt.

Operating in this hybrid environment is therefore a balancing act. Yesterday's self-powered train has clearly been marked for extinction, while tomorrow's technology remains tantalisingly beyond our grasp. What to do then, where policy and investment decisions need to be taken right now?

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HOW WE ARE HELPING

Our broad policy understanding and significant expertise in sustainable transport means we have been equally well placed to advise manufacturers, financiers and rail operators. We're engaged with the issues, supportive of the industry and understand how the different practical and technical issues play into the legal documents. In our work advising Hitachi Rail, for example, we've helped them successfully bid for four new-build rolling stock procurements worth over £1bn. These involve supplying and maintaining their innovative bi-mode AT300 trains.

As when advising on any transaction, our aim is to identify and mitigate risks and help clients connect with opportunities. In a separate case, it was vital that the new rolling stock being ordered had retro-fitment potential. It was also imperative that the financial model embedded an accrual towards the cost of a future modification programme in which the diesel traction system could be replaced by a battery pack, in readiness for the 2040 deadline. Of course, bigger battery systems mean more sophisticated cooling systems and these have their own size and weight penalties. However, developments in technology may resolve this in the next 20 to 30 years.

IMPACT

The bi-mode technology used on Hitachi Rail's AT300 models means the trains can run as sustainably as possible. They run on electric power wherever the network is electrified, only using diesel power where there are gaps in electrification infrastructure. The modern diesel engines are significantly lower emission than the previous fleets they produced. Crucially, this is cutting carbon dioxide emissions.

In addition, their regenerative braking capabilities create additional electricity, feeding back power into the overhead wires. This is reducing the amount of electricity that Network Rail needs to draw from power stations. So Hitachi Rail is achieving its commercial objectives – and the planet is benefiting too.

LEARNINGS

Be mindful of the current constraints on improving sustainability while also alert to future demands and opportunities. Wherever possible, future proof your investment, for example by making provision for modifications further down the line as new technology comes on-stream.

Finally, be prepared for long and challenging discussions, particularly if maintenance arrangements are involved. The current level of uncertainty about tomorrow's solution of choice makes detail – and proper scrutiny of this detail – more important than ever.

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