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UK investigates solar-powered trains' feasibility

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Imperial College London has partnered 10:10 – a climate change organisation – to investigate the use of solar panels along tracks to power electric trains.

The electricity from the solar panels will be redistributed directly to the railway system to increase efficiency, bypassing the electricity grid completely.

In a statement the university said that the research team will be the first to test the “completely unique” idea, which will have “wide impact with commercial applications on electrified rail networks all over the world. It would also open up thousands of new sites to small and medium scale renewable developments by removing the need to connect to the grid.”

The British train authority, National Rail, is currently investing in increasing the number of electric trains to bring down costs and reduce transport-related emissions.

According to 10:10, combining this effort with increased renewable energy generation in the UK could significantly decarbonise train lines by 2050.

In many rural areas, the electrical grid has reached its limit for integrating distributed energy generation and supplying power to train firms.

Leo Murray, Director of Strategy at 10:10 and Project-Lead, said: “What is particularly galling is that peak generation from solar and peak demand from the trains more or less match but we can't connect the two...I actually believe this represents a real opportunity for some innovative thinking.”

Initially, the project will study how to convert existing third rail systems, which supply electricity through an auxiliary rail running alongside the main rails to the ground.

Professor Tim Green, Director of Energy Futures Lab at Imperial College London said: “Many railway lines run through areas with great potential for solar power but where existing electricity networks are hard to access”.

The university will work on the technical aspects of the project with Turbo Power Solutions – a firm that works on distribution and management of power in the railway sector – while 10:10 leads the research on the long-term power purchase agreement (PPA) market for connecting renewables to transport systems.

Murray added: “I don't think you get a better fit for PPA than a train line. A rural train line even more so, the project would open up many investment opportunities across the country and further afield.”

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