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Stadler to display UK’s first independently powered electric multiple unit (IPEMU) at InnoTrans

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A Class 777/1 independently powered electric multiple unit (IPEMU), powered by battery, is one of seven vehicles that Stadler is displaying at InnoTrans this week in Berlin.

Ordered by the Liverpool City Region, this vehicle is the first of its type to operate in the UK and demonstrates Stadler’s commitment to decarbonisation and achieving net zero. It enables clients to extend operations on non-electrified lines and avoid infrastructure work, promoting integrated travel and boosting patronage.

The UK’s first IPEMU will be exhibited at InnoTrans this week, along with six other ground-breaking Stadler vehicles. Powered by battery, the IPEMU is a testament to Stadler’s pledge to help governments all over the world decarbonise the railway and provide sustainable public transport. The Liverpool City Region has ordered seven IPEMUs, as well as 46 Class 777/0 Metro EMUs, for the Merseyrail network in the north west of England, entirely replacing the legacy Class 507/508 fleet.

IPEMUs have the potential to replace diesel powered units, helping clients to cut carbon emissions. They can operate on non-electrified lines, enabling clients to extend operations, meaning that costly infrastructure upgrades can be prevented. Passengers are able to avoid changing modes to make travel easier, more convenient and more attractive, which in turn encourages more people to take the train.

Able to reach a speed of 50mph (80km/h) when fully charged, and able to cover a distance of 34 miles (55kms) on one battery load, the IPEMU retains all the basic functions of the original Class 777/0 design. It has the same interior and can carry the same number of passengers. The ride quality is smooth and passengers will not notice the transition from EMU to IPEMU mode says Stadler.

The IPEMU is equipped with a battery-based energy storage system. New battery traction equipment is mounted in the underframe and the cooling system is located on the roof. While an IPEMU is running on the electrified network, the batteries can be charged from the third rail, as well as through regenerative braking. IPEMUs can be recharged in less than 15 minutes, and batteries are able to undergo more than 10,000 charge/discharge cycles.

Ralf Warwel, sales director for the UK and Ireland at Stadler, says: “This ground-breaking vehicle will be the first of its type to operate in the UK. It exemplifies Stadler’s focus on green technology, highlighting our determination to work with operators and governments all over the world to cut carbon emissions and tackle the climate crisis. It will boost the Merseyrail network, providing greater flexibility for our client and helping provide a more compelling transport offering for the residents of the Liverpool City Region.”

Liverpool City Region Combined Authority’s programme director, David Powell, said: “The IPEMU concept has been an integral part of our strategy for the new fleet of trains for the Liverpool City Region. We are delighted to be one step closer to realising our vision of an expanded Merseyrail network without the need for electrification infrastructure. This will bring significantly improved, high quality service and direct connectivity to a greater proportion of the 1.6 million people in our city region.

“The IPEMUs will also contribute to our carbon reduction strategy by using only 20 per cent of the energy of the diesel powered trains that they can replace.”

No Class 777s have entered traffic on the Merseyrail network.