

(A) Do you have any further views on our Sep 2012 proposal to retain the 15% regenerative braking discount for modelled dc usage?

The 15% figure was set in 1994 when most EMUs had one motor coach (with 4 motors) and 3 trailers, and it had been the accepted figure for some years before that. The next batch of EMUs. Electrostars and Junipers, had 6 motors in a 4-car train and later still Desiros have 8 motors in a 4 car (and a lot more weight to effectively store energy). We are looking at re-powering the Class 455 units (a 4-motor train) but also fitting a braking system which uses more of the power car's weight for braking. Computer predictions indicate energy recovery of 20 – 25% on existing diagrams. Other units with 6 or 8 motors would also produce figures well over 15% and since these units are now by far the majority of electric trains I think there is a case for increasing the discount figure for modelled stock. The recent Birmingham University report also required a 23% regen figure to balance with modelled figures.

B) Do you agree with our proposal to continue using the current approach to reflecting regenerated energy in metered dc charges? (i.e. apply total losses mark-up to net energy consumption)

Yes. The other proposals just create the impression that measurement of losses is an exact science, which it isn't. I think another factor is the effect a regenerative braked fleet has on the supply voltage, which is to increase it. On the dc network the voltage can drop to 400v according to the Euronorm EN50413 but realistically it often drops into the 500s. Regenerating trains in a section will bring this voltage up, which means for a given power the current comes down. Since losses are proportional to the square of the current this must reduce the power supply losses to the train under power, which would mean Network Rail get a benefit (although it lands in the wash-up so it doesn't matter). For this and other complicated reasons it should be left alone.

C) Do you have any views on the consideration of a separate losses factor for metered regenerated energy in CP6?

Yes – don't do it. Once again it introduces what is effectively spurious detail.

(D) Do you have any other views our approach to reflecting regenerated energy in metered dc charges?

As incentives are very fashionable at the moment I think we should be making sure there is as strong an incentive as possible to fit regenerative traction equipment. While metering (on its own) produces no saving regenerative braking of all the 1980s EMUs still in service would save 24,000 MWh per year and a difference in the regenerative braking discount can make or break the business case for doing it.