

**From:** Ian Walmsley, Porterbrook  
**To:** Richard Gusanie, Office of Rail Regulation  
**Sent:** Fri 02/09/2011 09:25  
**Subject:** Consultation on PR13 (CP5) future electricity metering and charging

You will receive a response today from the Metering Steering Group (MSG), however I have a Minority view on one point I would like you to consider. The MSG are keen to introduce incentives for Network Rail to reduce losses from their infrastructure, which sounds appealing but requires further thought. Network Rail say that the annual cost of losses is about £500 per track km on a.c. and £5,000 per track km on d.c., however the cost of making physical changes to the infrastructure to significantly reduce these losses would be much more than this.

The d.c. system is the main problem where the losses result from the low voltage and subsequent high current necessary to support a given power. Losses increase with the square of the current and the resistance hence the biggest driver of losses is the current drawn by the trains. The resistance partly depends on the conductor rail but is mainly due to how close together the substations are. There is some leakage through poor insulators but this is relatively small compared to the traction losses. The increased current drawn since the system was installed has pushed up losses to around 25% and reducing this even by a few percent would mean installing new substations and conductor rails, the cost of which would never be justified. There could be a financial case for converting the system to ac overhead but this would clearly be unaffordable and difficult to justify when much of the country is still running diesel trains.

Any incentive on NR to reduce losses would therefore have to be very large and would distort spending priorities away from more important projects. Smaller incentives would have no effect and would be nothing more than a penalty charge on NR for inheriting the d.c. system, the parameters for which were set in the 1930s. I therefore do not support the idea of placing incentives on Network Rail to reduce losses.

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