Further to my earlier contribution (INV 0003), to look at question of electrification and hybrid traction.

1/ Significant cost savings can be made in electrification schemes if the costliest sections can be “left out”, with trains using stored energy whilst in the gaps.

2/ I doubt whether diesel engines are the best means for this “bridging gaps”, at a time when energy storage by battery, ultracapacitor or flywheel are rapidly advancing technologies. I don't have figures available, but guess that whilst capital costs may be comparable, the new technologies would have much lower maintenance costs than diesel – alternator sets, and would be more environmentally friendly.

3/ Hybrid traction, of any sort would only be justified if the extra cost is at least balanced by lower infrastructure costs..

4/ Two special cases:-

Paddington to Devon and Cornwall. West of the electrification endpoint at Newbury, trains rely on auxiliary diesel power, and therefore would be slower than at present. For the present, these services might continue with HST 125'S, until fuel – cell traction becomes more developed.

King's Cross to Inverness / Aberdeen. Rather than having on board diesel engines idle south of Edinburgh, it may make more sense to attach/detach diesel locomotives to straight electric units at Edinburgh (assuming loco and high speed e.m.u. have compatible control systems).

5/ Just to point out that references in this contribution to costs and benefits are meant to be of a “wide” nature, including environmental, etc.

*October 2018*