



The Scope for Modal Shift from Road to Rail

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Background

Net Zero 2050/Decarbonisation

Electric cars, vans & small trucks already a reality

Medium weight (26t)/medium range(100 miles) soon

Battery HGV fine for local & regional distribution, but...

No credible alternative to diesel HGV for trunking

ERS technically feasible, operationally non-starter

Unguided system, driver ability, double deck trailers

Electric rail is the only proven, credible trunking option

The Opportunity

Strategic decarbonisation of Trunking

Possible carbon pricing to drive change – power industry

Also, acute shortage of HGV drivers – wages doubling

Rapidly ageing workforce – youngsters won't do tramping

Supply of Eastern European hauliers & drivers has dried up

Fuel and drivers make up c.60-70% of hauliers costs

Competitive balance is moving in favour of rail

Question is not if, but when and by how much

New Model of Zero Carbon Intermodal Logistics

Electric rail trunking + battery/H road distribution

The Scope for Modal Shift

General perception is that scope is (very) limited

Data source - DfT Road Freight statistics (CSRGT)

Data by commodity, by distance band, by (sub) region

Define rail addressable market based on current position

- what rail currently does, day in day out:

1. Non-bulk freight (consumer goods etc) over 200km
2. Bulk freight over 100km

53% of all HGV tkms are generated in these bands

HGV trips broadly suited to rail – far higher than expected

Not all such HGV trips will switch

Aggregation of HGV loads is key to effective rail offer

Some origins and destinations lack critical mass

- agricultural products in remote rural areas, but...

Most HGV flows concentrated on the main corridors

Main rail routes parallel the motorway/trunk roads

A (very) few commodities not suited – livestock, but...

Chilled, fresh and frozen move on a daily basis now

38% of HGV tkms are on trips well suited to rail

Key flow categories

Trips well beyond battery/H range	> 300km
Deep & Short Sea boxes and Autos	200-300km
Some Domestic Trunking (c15% of total)	200-300km
Heavy bulks (construction & metals)	100-300km
Other bulks (petroleum, chemicals etc)	200-300km

Defines realistic modal switch – 200m tonnes pa

100m Construction, Other Bulk 25m

Deep/Short Sea 35m, Domestic trunking 40m

Implications for rail network

'Rail couldn't cope with modal transfer', but...

2000t bulk trains, 775m intermodal trains = 50-80 HGVs

Converting tonnes to trains – current best practice

Bulk 2000t one way, return empty

Domestic Trunking 1000t each way

Deep/short Sea 1000t round trip (750 import/250 export)

18 hours per day – exclude 2 x 3 hour am/pm peaks

= 26 trains per hour across the network in each direction

Most Main Lines 1-2 extra freights/hour in each direction

Impact by Route

+3 trains per hour

WCML(S), WCML(N), F2M&N, Cross London (N) & (S)
[+4 tph Bletchley-Crewe, Felixstowe-Kennet]

+2 trains per hour

ECML (inc S.Humberside), NE-SW(N), NE-SW(S inc Devon & Cornwall), GWML (inc SWML + B&H), Southampton-Oxford

+1 trains per hour

MML, EWR, Trans Pennine, Hope Valley(E), Hope Valley (W)
Settle & Carlisle, Westbury-Southampton

NB - some trains cover more than one route, also not all routes see this level of trains every hour, esp at lower end

Challenges and Solutions

WCML(S) +3-4 tph

WCML(N) +3 tph

F2M&N +3-4 tph

Cross London +3 tph

HS2 frees up sufficient capacity

Flighting of trains plus new long loops

Soham-Ely doubling plus Ely North Jn

London Freight strategy package

Grade separation of a few junctions, e.g. Didcot East

Use of currently unused freight paths – substantial reserve

Value of a Path (RDG/Deloitte £1.5m)

Fewer Inter City/long distance commuter trains post Covid

Modest capacity enhancement–no show stoppers

Terminals

SRFIs in RDC clusters are key – Wigan/Avonmouth/etc

Also, modal transfer points on edge of urban areas

- transfer smaller 'city' containers as well as bulks

Connection of major manufacturing plants – food/cars

- cost-effective siding connection by NR/GBR - FFG

Continued growth of SRFIs in Golden Triangle for NDCs

- planning system is a key component in rail freight growth

Intensification of use of existing terminals – aggregates

Terminals are key to intermodal logistics model

Conclusions

53% of **all** HGV tonne kms are on broadly rail-capable trips
38% of **all** HGV tonne kms are on trips well suited to rail
Bulk >100km, consumer goods from >200km, all >300km
Equates to 200m tonnes/26 paths an hour across network
+2 paths/hour most main lines, +4 on WCML and F2M&N
Latent spare capacity, fewer passenger trains post Covid
Grade separation of a few key junctions – Werrington +
HS2 capacity release WCML(S) – F2M&N/WCML(N) action

Modal transfer of 38% of HGV tkms is very feasible