

Network Rail April 2008 Strategic Business Plan Update

Supporting document

Structure of charges

Appendices

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Appendix 1 Consultation stakeholder responses

List of consultation respondents

In the concluding remarks to our *October 2007 Strategic Business Plan Supporting Document - Structure of Charges* we invited stakeholder responses to the charging proposals therein. We subsequently organised a Structure of Charges industry workshop on 29th November, 2007, at which we again invited responses to our consultation by 7th December, 2007. As part of the consultation process we continued to share our developments and seek feedback through the Industry Steering Group and the Network Rail website along with various other industry working groups as appropriate. The following is a list of all the stakeholders who responded to our consultation:

- ATOC (Association of Train Operating Companies)
- Coal Imp (Association of UK Coal Importers)
- Department for Transport (freight only)
- English Welsh & Scottish Railway Ltd (EWS)
- First Group
- Freightliner
- Freight Transport Association (FTA)
- Merseytravel
- National Express Group
- Northern Rail
- Rail Freight Group (RFG)
- South Western
- Transport for London
- Transport Scotland
- UK Coal Mining Ltd (UKC)

Stakeholder responses

The following tables are a representative collection of stakeholder responses to the structure of charges consultation, which, as stated above, closed on 7th December, 2007. We have not quoted the stakeholder responses verbatim, although some small passages are direct quotations.

Association of Train Operating Companies:	
Variable Usage	Believes the incentive benefits of the rail surface damage term are nullified by application of Schedule 9 / clause 18.1 provisions in franchise agreements. The rail surface damage term is also impacted by Technical Specifications for Interoperability (TSI) for rolling stock. ATOC also believes the sample of vehicle types used to calculate the lateral forces element is too small to be a robust basis for charging.
Route Based	Is not in favour of route-based charging because it would make the VTAC overly complex and would make it difficult for operators to plan their businesses.
Capacity	Believes the capacity charge involves disproportionate complexity with little incentive effects on franchised operators as their level of service is largely specified by the Department for Transport.
Capability	Agrees with Network Rail's preference for a tonnage capability measure.
Stations	Is unconvinced about including stations charges in the FTAC, seeing it as being inconsistent with station access arrangements as they are rooted in a landlord and tenant relationship rather than the infrastructure provider and operator relationship. ATOC welcomes greater transparency of station costs, but will only be fully convinced when there is certainty of portfolio expenditure over the control period.
EC4T	Believes freight operators should be included in the wash-up or charged a premium to reflect the risk taken on the wash-up by franchised TOCs.
Freight-only lines	
Coal Spillage	
Other	

Association of UK Coal Importers (Coal Imp):	
Variable Usage	
Route Based	
Capacity	
Capability	
Stations	
EC4T	
Freight-only lines	
Coal Spillage	Welcomes a review towards incentivising a reduction in spillage. However, the spillage charges do not appear transparent and a more detailed breakdown should be provided. Coal Imp would expect considerable scope for savings.
Other	

Department for Transport (only in respect of freight):	
Variable Usage	
Route Based	Wishes to see industry transaction costs reduced and thus concerned that more complex charging systems (such as route based charges) would introduce higher transaction costs. DfT also suggests it is not obvious that applying this information would modify operator behaviour to optimise outcomes.
Capacity	Is concerned about the complexity of the capacity charge proposals, so it does not support increased disaggregation. DfT would not support recalculating only once at the start of periodic review in light of the significant network investments planned in CP4. It would like to understand the effect of re-basing schedule 8.
Capability	
Stations	
EC4T	
Freight-only lines	
Coal Spillage	Supports proposal for a discount or rebate in the coal spillage charge for operators significantly reducing spillage. Priority should be to prevent spillage at source.
Other	

English Welsh & Scottish Railway Ltd:	
Variable Usage	Disagrees that usage cost variation is broadly linear with traffic and thinks maintenance should be stepped as per track categories. In favour of a variable charge taking account of lateral forces and would like to see an improvement on the freight vehicle suspension factors. EWS rejects the inclusion of the electrification usage charge, believing the cost of calculating the charge is probably greater than the wear and tear on the assets.
Route Based	Is strongly opposed to route based charging as it is over complicated and places an intolerable cost and effort burden upon Network Rail and freight operators. EWS is also sceptical about the variation in variable route costs.
Capacity	Rejects the principle of capacity charge as it sends no economic signals and provides no incentives ('The only way to reduce exposure to the capacity charge is to reduce activity').
Capability	Is concerned capability, as defined in the structure of charges, does not merit serious consideration until previous questions have been answered. How is capability defined and how does freight and passenger capability differ? What level of capability underpins past and present charges and how is it best captured? What is the relationship between increasing capability and enhancing the network in a traditional sense?
Stations	

EC4T	Strongly opposes the inclusion of freight in the EC4T wash up as they are not protected from any financial penalties that may arise from a change of industry charging rules and principles.
Freight-only lines	Is concerned about the high cost of freight-only lines, especially in light of the EWS report.
Coal Spillage	Supports the option of a rebate on the coal spillage charge for operators who demonstrate that they are minimising spillage.
Other	Would like to see a much tougher "use it or lose it" regime when access rights would be forfeited when not used 50% of the time, rather than a complex reservation charge.

First Group:	
Variable Usage	Is concerned that the Rail Surface Damage term would introduce a significant degree of complexity and that the existing cost base is inflated by the absence of effective rail flange lubricators. It wants to avoid excessive complexity for the electrification asset charge, as the charge will generate unnecessary administrative costs, and prefers a simple approach such as being based on electric train km.
Route Based	Believes the case for route-based charging has not been made. It represents significant further complexity without being sure that any optimisation of capacity is likely.
Capacity	Believes the planned capacity charge is fundamentally flawed and does not think it is fit for purpose. The development of new planning systems should facilitate a Timetable Robustness Index which would highlight where unsustainable timetable changes are proposed.
Capability	Favours an obligation on operators to discuss their requirements regarding network capability at the time of major renewals.
Stations	Would be prepared to accept station charges being incorporated in FTAC as long as First Group is fully consulted and involved in station maintenance and repair plans, and reporting is increased at SFO level. First also wants to retain the self-help provisions. There are some concerns about fixing Qualifying Expenditure for 5 years, which would remove the current flexibility and transparency of direct links between charges and outputs.
EC4T	Is not in a position to finalise its comments, however, First Group welcomes proposals to increase regenerative braking but resists fixed discounts. Wants better modelling of freight traffic EC4T consumption and wants FOCs included in the wash-up where they are not metered. First Group is in favour of metering freight trains, particularly due to the complexity of modelling freight consumption.
Freight-only lines	
Coal Spillage	
Other	

Freightliner Ltd:	
Variable Usage	Notes the RSD term in usage charges is likely to lead to a reduction in the charge for freight. Freightliner believes there are some significant anomalies in the individual wagon tariffs and would welcome greater transparency on increases/decreases to wagon tariffs.
Route Based	Strongly opposes route based charges, principally believing it would distort the market with road. It is also concerned that providing a quick quotation to a customer would be made almost impossible, and planned and unplanned diversions would be very problematic.
Capacity	Is unconvinced that capacity charges should be payable for base level traffic when schedule 8 is being reset at the beginning of Control Period 4.
Capability	Does not support the obligation to provide advanced notice of tonnage increases as this may affect the speed in which last minute changes are handled. Freightliner wants more information on the capability proposal.
Stations	
EC4T	Welcomes the option to continue with MLUI but is concerned about a rebasing of cost. Freightliner would like to know what inflationary metric would be used for the annual price review. It welcomes a reduction in the EC4T asset charge and favours this levied in a pence per electrified vehicle km. Freightliner is opposed to being included in EC4T wash up based on its inability to pass on the cost to the customer through pricing.
Freight-only lines	Welcomes an agreement on a list of routes included as freight-only lines but is concerned that the attributed costs appear high. Freightliner wants more detail for cost breakdowns, particularly as they do not believe many of these lines are renewed every 35 years as implied by the renewals cost model.
Coal Spillage	Has not seen evidence of preventative rather than reactionary clean up of the spillage (i.e. before point failures). Freightliner believes it is imperative there should be incentives where operators can demonstrate coal spillage is minimised or eliminated.
Other	

Freight Transport Association:	
Variable Usage	
Route Based	Has concerns about the practical effects of route based charging, believing freight operators become potential prisoners of the geography in which they operate (the number of bridges, structures, earthworks, curvatures, etc).
Capacity	Is concerned the capacity charge is a disincentive to new entrants on the network, and also questions the necessity of the charge given the performance regime re-benchmarking.
Capability	
Stations	

EC4T	Welcome the proposals for operators to spot bid or hedge buy EC4T
Freight-only lines	Remains opposed to the new freight-only line charge for ESI coal and spent nuclear fuel and the method of charging via a mark-up on the variable charge across the network.
Coal Spillage	Favours a coal spillage charge that incentivises the provision of better loading facilities.
Other	

Merseytravel:	
Variable Usage	
Route Based	Is content with route based charges proposals.
Capacity	Is content with capacity charge proposals.
Capability	
Stations	Thinks there needs to be much greater transparency at the Station Facility Operator level.
EC4T	Is content with the EC4T proposals.
Freight-only lines	Supports the freight-only line charges proposals.
Coal Spillage	Thinks there should be further industry discussion on the appropriate way forward.
Other	

National Express:	
Variable Usage	Is not convinced of the need for cost reflectivity in greatly disaggregated charges. These are seen as overly complex for an incremental cost which would be [for National Express] a minor element in any business case.
Route Based	Rejects the idea of route based charging based on the administration outweighing any benefits in terms of improvements to the economic signals.
Capacity	Rejects the idea of recalculating capacity charges and prefers incremental charges reflecting the incremental (decremental) costs of increased congestion.
Capability	
Stations	<p>Supports bringing long term charges into the FTAC as long as individual station charges elements are declared. National Express does not support the removal of beneficiary contributions to station costs and is concerned about the risk of having no say on spend at stations in Scotland due to costs being in the Scotrail FTAC.</p> <p>On Qualifying Expenditure National Express is not convinced a 5-year deal would have flexibility for changes to a beneficiary's specification and wants to see an efficiency incentive incorporated.</p>

EC4T	Would like to see energy-monitoring modules on train driving simulators rather than widespread monitoring of train electricity consumption. Need to ensure consumption rates are accurate (particularly to vehicle type). The 'one' EC4T consumption rates need to be recalculated.
Freight-only lines	
Coal Spillage	
Other	

Northern Rail:	
Variable Usage	Supports, in principle, the electrification asset usage charge as long as the charge reflects actual wear and tear and is not overwhelmed by the complexity of billing.
Route Based	Is unconvinced what the benefits of route based charging would be and believes the costs of calculation and billing may outweigh any benefits.
Capacity	Believes this charge provides no incentive for Network Rail as the mechanism acts as a pass-through. Northern Rail wants to see a reduction of the capacity charges over time (in the same way the performance benchmarks are expected to reduce) and also see it based on "planned" timetable rather than actual train running.
Capability	
Stations	Supports proposals to reduce transaction costs but wants visibility of stations costs.
EC4T	Would like to see improvements in the wash-up arrangements and wants to see the continued development of metering. Northern Rail would like a recalculation of the EC4T consumption rates for CP4, and expects a volume reduction to be applied to units equipped with a regenerative braking system.
Freight-only lines	
Coal Spillage	
Other	Believes it is unreasonable to assume the introduction of additional vehicles outlined in the Strategic Business Plan will not require any depot enhancements and will have no impact on depot charges.

Rail Freight Group:	
Variable Usage	Agrees that a Rail Surface Damage term should be added to network-wide variable charges to incentivise the development of vehicles which reduce industry costs. Regarding the variable electrification asset charge RFG suggests a pence per electrified vehicle kilometre to be the most appropriate charge.
Route Based	Concerned about perverse incentives if route based charges are introduced as it would be wholly impractical to expect FOCs to have different wagon and loco fleets optimised to different routes. It would also incentivise operators to seek access on straight rather than mixed routes.

Capacity	Is concerned about the complexity of the capacity charge.
Capability	Believes that the contractual proposal for the capability issue is unclear, unworkable and uncompetitive and RFG also believes that Network Rail should be funded for additional maintenance costs through the RAB.
Stations	
EC4T	Suggests that pence per electrified vehicle km is best for EC4T asset usage.
Freight-only lines	
Coal Spillage	A new coal spillage incentive should be devised so that operators who minimise spillage should pay less, the charge should be related to the level of spillage actually created by each operator / customer.
Other	

South West Trains:	
Variable Usage	Believes the VTAC should be simple (not overly complex) and needs more work to validate the values.
Route Based	Is not convinced by the route based charging mechanism and believes it would make the charge overly complex and difficult to use.
Capacity	
Capability	
Stations	Is not convinced by the incorporation of the long term charge into the FTAC as this suggests a reduction of visibility and transparency of costs.
EC4T	Is convinced good progress is being made on volume measurements. South West Trains wants freight to be included in EC4T wash-up to ensure a level playing field.
Freight-only lines	
Coal Spillage	
Other	

Transport for London:	
Variable Usage	Assumes there will be no extra payment for North London Line enhancements given the 'smoothed relationship' between increased traffic and costs. TfL has no objection to the rail surface damage term, as it represents no additional charge (as this would be netted off from the overall VTAC) and would enable better identification of specific costs and charges associated with surface wear.
Route Based	Sees benefits for increased transparency and decision-making in having greater disaggregation of charges in future but understands the proposal to be beyond CP4.

Capacity	Questions the validity of the capacity charge believing it replicates schedule 8 supplemental costs. TfL does not support the introduction of a charge for the whole of the control period but should have a mechanism for reviewing charges where investment has been made to increase capacity.
Capability	Supports the proposal of appraising additional costs in case-specific analysis but believes it is unclear what level of actual increases this would impart to costs already covered by the VTAC.
Stations	Is concerned about the impact of the proposals given that TfL is now an SFO but has an unregulated track access agreement. TfL finds it unclear how the charge will be detailed in the track access contract and the exact method of allocation, but it welcomes the commitment to greater transparency of planned and actual stations expenditure.
EC4T	Supports the proposal for further disaggregation of rebates for regenerative braking as an incentive to the further promotion of regeneration capability.
Freight-only lines	
Coal Spillage	
Other	Believes the relative proportion of fixed to variable charges appears high and suggest that government grant should be for truly common costs. In this way a more transparent and level playing field would be gained between operators.

Transport Scotland:	
Variable Usage	
Route Based	Is not currently persuaded that the additional complexity of route-based charging would translate into changed behaviour or appropriate incentives, especially where long term access and franchise agreements are in place.
Capacity	Remains to be convinced whether disaggregated capacity charges produce a benefit to the industry. Transport Scotland questions whether the capacity charge double counts performance issues already captured by track access agreements.
Capability	
Stations	
EC4T	Welcomes EC4T regenerative braking discounts as it sends clear signals to both infrastructure owner and operators to support more sustainable and environmentally-friendly processes. Transport Scotland is also in favour of the changed procurement approach.
Freight-only lines	Anticipates that ORR will challenge the freight-only line cost allocation and modelling methodologies to ensure they are appropriate.
Coal Spillage	
Other	Believes the use of the infrastructure cost model requires all stakeholders and operators to be satisfied with the functionality of the model and the underlying data.

UK Coal Mining:	
Variable Usage	
Route Based	Is concerned route based charges may place additional costs on the coal sector to support other freight users.
Capacity	
Capability	
Stations	
EC4T	
Freight-only lines	Finds it absurd to allocate freight-only line charges to ESI coal and spent nuclear fuel traffic. Believes charges should be averaged so that individual power stations and collieries are not disadvantaged.
Coal Spillage	Believes more work is needed on coal spillage, to include effect of rapid loading bunkers, shovels and new larger capacity wagons.
Other	

Issues raised at the Structure of Charges Industry Workshop - 29 th November 2007	
Variable Usage	Concern that costs do not vary linearly with traffic but have step changes.
Route Based	Concern about the large range in costs.
Capacity	Why is the capacity charge levied on all traffic and why does it ignore the fact that the network has been enhanced?
Capability	Whether the variable cost work can help categorise network ability to carry increased traffic?
Stations	How would beneficiaries contribute to station enhancements sponsored by the SFO? Also, what would happen to long term charge increases following enhancements in CP3?
EC4T	Are the consumption rates going to be recalculated for CP4?
Freight-only lines	Concern about high cost of lines.
Coal Spillage	Views that the cost of clearing up spillage could be lower if carried out more frequently (preventative rather than reactive). An alternative view expressed was that emphasis should be on stopping spillage occurring in the first place.
Other	

Appendix 2 Variable Track Access Usage Tariffs (passenger)

See separate spreadsheet showing proposed vehicle usage tariffs.

The figures are given in pence per vehicle mile in 2006/07 prices at end CP4 levels of efficiency. Note also that these tariffs exclude the additional mark ups for the electrified asset usage charge.

Appendix 3 Variable Track Access Usage Tariffs (freight)

See separate spreadsheet showing proposed vehicle and wagon usage tariffs.

The figures are given in pounds per 1000 gross tonne mile in 2006/07 prices at end CP4 levels of efficiency. Note also that these tariffs exclude the additional mark ups for freight-only lines (applicable to ESI coal and spent nuclear fuel commodities) and the additional mark ups for the electrified asset usage charge.

Appendix 4 TTCI Reports

See separate documents for two TTCI reports related to variable usage charges and vehicle tariff modelling as follows:

Methodology to calculate variable usage charges for CP4 – TTCI, March 2008

User guide for variable usage charging model – TTCI, March 2008

Appendix 5 EC4T Forecast Tariffs

In the following tables we present a series of forecast tariffs for electricity for traction by Electricity Supply Traction Area (ESTA) for 2009/10: the first year of CP4. These forecasts remain unchanged from our SPB in October 2007. Although the market prices have risen significantly since last October, many market specialists believe that the current market price is higher than it should be and that prices will fall in the short-term, hence we did not believe it prudent to update the tariffs at this time.

The following assumptions have gone into deriving the tariffs:

1. Global Warming Pressures: under phase two of the EU emissions trading scheme, which started in January 2008 and will run until December 2012, carbon prices are currently at €12-20 / tCO₂carbon, which is a big increase from phase 1 where they were trading close to zero.
2. Oil and Gas Prices: given that the costs of oil, gas and electricity are closely linked, any events, such as a new conflict in the Middle East or significant demand increases, that restrict the flows of oil and gas would have a knock on effect to the price of electricity.
3. Increased Investment in Renewables: while some renewable technologies may currently be more expensive than fossil fuelled generation, it has been assumed that a decreasing reliance on fossil fuels will stabilise or reduce the price of electricity in the medium term.
4. Transmission costs: these are regulated by the Office of Gas & Electricity Markets (OFGEM); the current price control review lasts until March 2012 and allows National Grid to raise its charges by RPI + 2% each year. From April 2012 it has been assumed that the same regime will continue to apply; and
5. Distribution costs: are also regulated by Ofgem, the current price control which last until March 2010 and allows the Distribution Network Owners (DNOs) to raise its charges by RPI each year. From April 2010 it has been assumed that an RPI increase will continue to be applied.

Forecast 2009/10 Median Traction Electricity Tariffs in 2006/7 Prices

Table 1a 2009/10 Median Traction Electricity Tariffs in 2006/7 prices (Current Chargeable ESTAs*)										
Rates in p/kWh	Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend		
	Day	Peak	Night	Day	Night	Day	Night	Day	Night	
	07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00	
ESTA										
M	Merseyside	6.754	13.890	5.289	6.546	4.654	4.542	3.545	4.199	3.333
N	Midland Main Line	6.561	13.396	5.097	6.353	4.461	4.349	3.352	4.006	3.140
O	LTS	7.091	16.148	5.627	6.884	4.991	4.879	3.882	4.536	3.670
P	Great Eastern	6.810	15.179	5.346	6.603	4.711	4.598	3.601	4.256	3.389
Q	West Anglia	6.678	13.920	5.214	6.470	4.578	4.466	3.469	4.123	3.257
R	East Coast Main Line	6.861	14.190	5.396	6.653	4.761	4.649	3.652	4.306	3.439
S	Scotland	6.683	10.392	5.219	6.476	4.584	4.471	3.474	4.129	3.262
T	West Coast Main Line	6.905	14.740	5.439	6.698	4.804	4.694	3.694	4.351	3.482
U	Southern	6.756	15.355	5.275	6.548	4.640	4.544	3.530	4.201	3.318

Table 1b 2009/10 Median Traction Electricity Tariffs in 2006/7 prices (Proposed Chargeable ESTAs)

Rates in p/kWh									
ESTA	Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend	
	Day	Peak	Night	Day	Night	Day	Night	Day	Night
	07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00
M Merseyside	6.754	13.890	5.289	6.546	4.654	4.542	3.545	4.199	3.333
N Midland Main Line	6.561	13.396	5.097	6.353	4.461	4.349	3.352	4.006	3.140
O LTS	7.091	16.148	5.627	6.884	4.991	4.879	3.882	4.536	3.670
P Great Eastern	6.810	15.179	5.346	6.603	4.711	4.598	3.601	4.256	3.389
Q West Anglia	6.678	13.920	5.214	6.470	4.578	4.466	3.469	4.123	3.257
A ECML Central	6.994	13.991	5.530	6.787	4.895	4.782	3.785	4.439	3.573
B ECML North	6.726	12.592	5.262	6.519	4.627	4.514	3.517	4.172	3.305
C ECML Leeds	6.809	13.714	5.345	6.602	4.710	4.598	3.600	4.255	3.388
R ECML South	6.863	14.712	5.399	6.656	4.764	4.651	3.654	4.309	3.442
D Scotland East	6.860	11.337	5.395	6.652	4.760	4.648	3.651	4.305	3.439
E Scotland North & West	6.705	10.002	5.241	6.498	4.606	4.493	3.496	4.151	3.284
F Scotland WCML	6.884	10.640	5.420	6.677	4.785	4.673	3.675	4.330	3.463
S Scotland Glasgow	6.491	10.592	5.027	6.284	4.392	4.279	3.282	3.937	3.070
G WCML Central	6.923	14.316	5.458	6.715	4.822	4.711	3.713	4.368	3.501
H WCML West Midlands	6.884	14.917	5.414	6.677	4.779	4.673	3.669	4.330	3.457
I WCML Manchester	6.827	12.886	5.355	6.619	4.720	4.615	3.610	4.272	3.398

Table 1b 2009/10 Median Traction Electricity Tariffs in 2006/7 prices (Proposed Chargeable ESTAs)

Rates in p/kWh ESTA	Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend	
	Day	Peak	Night	Day	Night	Day	Night	Day	Night
	07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00
J WCML North	7.227	13.049	5.763	7.020	5.128	5.015	4.018	4.673	3.806
T WCML South	6.853	15.514	5.389	6.646	4.754	4.641	3.644	4.299	3.432
K Southern Kent	6.960	15.040	5.496	6.753	4.861	4.748	3.751	4.406	3.539
L Southern Sussex	6.879	14.282	5.415	6.671	4.779	4.667	3.670	4.324	3.458
U Southern Suburban	6.576	16.718	5.111	6.368	4.476	4.364	3.366	4.021	3.154
Y Southern Wessex	6.699	14.443	5.162	6.491	4.526	4.487	3.417	4.144	3.205

Forecast 2009/10 High Traction Electricity Tariffs in 2006/7 Prices

Table 2a 2009/10 High Traction Electricity Tariffs in 2006/7 prices (Current Chargeable ESTAs)										
Rates in p/kWh	Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend		
	Day	Peak	Night	Day	Night	Day	Night	Day	Night	
	07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00	
ESTA										
M	Merseyside	7.206	14.820	5.643	6.984	4.966	4.846	3.782	4.481	3.556
N	Midland Main Line	7.001	14.293	5.438	6.778	4.760	4.641	3.577	4.274	3.350
O	LTS	7.565	17.229	6.003	7.344	5.326	5.205	4.141	4.840	3.916
P	Great Eastern	7.267	16.196	5.704	7.045	5.026	4.906	3.843	4.541	3.616
Q	West Anglia	7.125	14.852	5.563	6.904	4.885	4.765	3.701	4.399	3.475
R	East Coast Main Line	7.320	15.140	5.757	7.098	5.080	4.960	3.896	4.594	3.670
S	Scotland	7.131	11.087	5.568	6.909	4.891	4.771	3.706	4.405	3.481
T	West Coast Main Line	7.368	15.727	5.803	7.147	5.126	5.008	3.942	4.642	3.716
U	Southern	7.208	16.383	5.628	6.987	4.950	4.848	3.767	4.482	3.540

Table 2b 2009/10 High Traction Electricity Tariffs in 2006/7 prices (Proposed Chargeable ESTAs)

Rates in p/kWh									
ESTA	Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend	
	Day	Peak	Night	Day	Night	Day	Night	Day	Night
	07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00
M Merseyside	7.206	14.820	5.643	6.984	4.966	4.846	3.782	4.481	3.556
N Midland Main Line	7.001	14.293	5.438	6.778	4.760	4.641	3.577	4.274	3.350
O LTS	7.565	17.229	6.003	7.344	5.326	5.205	4.141	4.840	3.916
P Great Eastern	7.267	16.196	5.704	7.045	5.026	4.906	3.843	4.541	3.616
Q West Anglia	7.125	14.852	5.563	6.904	4.885	4.765	3.701	4.399	3.475
A ECML Central	7.462	14.928	5.900	7.241	5.223	5.102	4.038	4.736	3.812
B ECML North	7.177	13.434	5.614	6.955	4.937	4.817	3.753	4.451	3.526
C ECML Leeds	7.266	14.633	5.704	7.044	5.025	4.906	3.842	4.540	3.615
R ECML South	7.323	15.697	5.760	7.102	5.083	4.963	3.899	4.598	3.673
D Scotland East	7.319	12.095	5.757	7.097	5.079	4.959	3.895	4.593	3.669
E Scotland North & West	7.154	10.672	5.592	6.933	4.914	4.794	3.730	4.428	3.504
F Scotland WCML	7.345	11.352	5.783	7.124	5.105	4.985	3.921	4.619	3.695
S Scotland Glasgow	6.926	11.301	5.364	6.704	4.686	4.566	3.502	4.200	3.276
G WCML Central	7.386	15.275	5.823	7.165	5.145	5.026	3.961	4.661	3.735
H WCML West Midlands	7.345	15.916	5.777	7.124	5.098	4.985	3.915	4.619	3.688
I WCML Manchester	7.284	13.749	5.714	7.063	5.036	4.924	3.852	4.558	3.626

Table 2b 2009/10 High Traction Electricity Tariffs in 2006/7 prices (Proposed Chargeable ESTAs)

Rates in p/kWh ESTA	Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend	
	Day	Peak	Night	Day	Night	Day	Night	Day	Night
	07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00
J WCML North	7.711	13.922	6.149	7.490	5.471	5.351	4.287	4.985	4.061
T WCML South	7.312	16.552	5.750	7.091	5.072	4.952	3.888	4.587	3.662
K Southern Kent	7.426	16.048	5.864	7.205	5.186	5.066	4.003	4.701	3.776
L Southern Sussex	7.340	15.238	5.778	7.118	5.099	4.980	3.916	4.614	3.689
U Southern Suburban	7.016	17.836	5.453	6.794	4.776	4.656	3.592	4.290	3.365
Y Southern Wessex	7.148	15.410	5.507	6.926	4.830	4.788	3.645	4.422	3.419

Forecast 2009/10 Low Traction Electricity Tariffs in 2006/7 Prices

Table 3a 2009/10 Low Traction Electricity Tariffs in 2006/7 Prices (Current Chargeable ESTAs)										
Rates in p/kWh		Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend	
ESTA		Day	Peak	Night	Day	Night	Day	Night	Day	Night
		07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00
M	Merseyside	6.534	13.439	5.118	6.333	4.503	4.395	3.429	4.063	3.225
N	Midland Main Line	6.348	12.961	4.931	6.147	4.316	4.207	3.243	3.876	3.037
O	LTS	6.861	15.623	5.444	6.660	4.830	4.721	3.756	4.389	3.551
P	Great Eastern	6.589	14.687	5.172	6.388	4.558	4.449	3.484	4.118	3.280
Q	West Anglia	6.461	13.467	5.045	6.260	4.429	4.321	3.356	3.989	3.151
R	East Coast Main Line	6.638	13.730	5.221	6.437	4.607	4.498	3.533	4.166	3.328
S	Scotland	6.467	10.054	5.050	6.266	4.435	4.326	3.362	3.994	3.156
T	West Coast Main Line	6.682	14.261	5.263	6.480	4.648	4.541	3.575	4.209	3.369
U	Southern	6.536	14.856	5.104	6.335	4.489	4.396	3.416	4.065	3.210

Table 3b 2009/10 Low Traction Electricity Tariffs in 2006/7 Prices (Proposed Chargeable ESTAs)

Rates in p/kWh		Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend	
		Day	Peak	Night	Day	Night	Day	Night	Day	Night
ESTA		07:30	16:00	19:00	07:30	19:00	07:30	19:00	07:30	19:00
M	Merseyside	6.534	13.439	5.118	6.333	4.503	4.395	3.429	4.063	3.225
N	Midland Main Line	6.348	12.961	4.931	6.147	4.316	4.207	3.243	3.876	3.037
O	LTS	6.861	15.623	5.444	6.660	4.830	4.721	3.756	4.389	3.551
P	Great Eastern	6.589	14.687	5.172	6.388	4.558	4.449	3.484	4.118	3.280
Q	West Anglia	6.461	13.467	5.045	6.260	4.429	4.321	3.356	3.989	3.151
A	ECML Central	6.767	13.537	5.350	6.566	4.736	4.627	3.662	4.295	3.457
B	ECML North	6.508	12.183	5.091	6.307	4.477	4.368	3.403	4.036	3.198
C	ECML Leeds	6.588	13.269	5.172	6.387	4.557	4.449	3.483	4.117	3.279
R	ECML South	6.640	14.234	5.224	6.439	4.609	4.501	3.535	4.169	3.331
D	Scotland East	6.637	10.968	5.220	6.437	4.606	4.497	3.532	4.165	3.327
E	Scotland North & West	6.488	9.678	5.071	6.287	4.456	4.347	3.383	4.016	3.177
F	Scotland WCML	6.661	10.295	5.244	6.460	4.630	4.521	3.556	4.189	3.351
S	Scotland Glasgow	6.280	10.248	4.864	6.080	4.249	4.141	3.175	3.809	2.971
G	WCML Central	6.698	13.851	5.280	6.497	4.666	4.558	3.592	4.226	3.387
H	WCML West Midlands	6.661	14.432	5.238	6.460	4.623	4.521	3.550	4.189	3.344

Table 3b 2009/10 Low Traction Electricity Tariffs in 2006/7 Prices (Proposed Chargeable ESTAs)

Rates in p/kWh		Winter Weekday			Winter Weekend		Summer Weekday		Summer Weekend	
		Day 07:30	Peak 16:00	Night 19:00	Day 07:30	Night 19:00	Day 07:30	Night 19:00	Day 07:30	Night 19:00
ESTA										
I	WCML Manchester	6.605	12.467	5.182	6.405	4.566	4.465	3.493	4.133	3.288
J	WCML North	6.992	12.625	5.576	6.792	4.961	4.853	3.887	4.521	3.683
T	WCML South	6.630	15.010	5.214	6.430	4.599	4.491	3.526	4.159	3.321
K	Southern Kent	6.735	14.552	5.318	6.533	4.703	4.594	3.630	4.262	3.424
L	Southern Sussex	6.656	13.817	5.239	6.455	4.624	4.515	3.551	4.183	3.345
U	Southern Suburban	6.362	16.175	4.945	6.161	4.331	4.222	3.257	3.890	3.052
Y	Southern Wessex	6.481	13.975	4.994	6.280	4.379	4.342	3.306	4.010	3.100

Appendix 6 Examples of significant changes in traffic that lead to step-changes in maintenance and renewal activity

This paper describes three types of significant change in traffic that can have a step-change impact on the rate of deterioration of the track. It goes on to give two examples of significant changes in the tonnage or nature of traffic that have led to disproportionate increases in track costs.

Increase in Total Annual Tonnage of Traffic

Generally speaking, track maintenance and renewals activities and costs will rise in proportion with increases in the total annual tonnage of traffic. However, a significant change in traffic can have the potential to cause such rapid deterioration of the track that maintenance is no longer effective and a TSR and/or premature renewal are the only practical means of reducing the deterioration to a manageable rate. This situation is most likely to occur on older jointed track that has previously carried light to medium tonnages of traffic. It is unlikely to occur on modern CWR track.

Increase in Axle Weight of Traffic

Damage to the track will increase in proportion to the square of increases in the axle weight of traffic. It follows that a step change in the axle weight or the proportion of heavy axle weight traffic that is being carried can have a significant impact on the rate of deterioration of the track. As above, a TSR and/or premature renewal may be the only practical means of reducing the deterioration to a manageable rate. The situation is most likely to occur on older jointed track that has previously carried light to medium tonnages of traffic, with little or no heavy axle weight traffic as part of the mix.

Stiffer Vehicle Primary Suspension or Worsened Wheel/Rail Interface

Modern vehicle types often have stiffer primary suspension than the older rolling stock they replace. Unfortunately this leads to greater Rolling Contact Fatigue (RCF) damage to rails on curves and at otherwise benign track alignment defects. It also leads to increased rail sidewear on curves. The increased rail damage can be compounded by wheel profiles that are designed to maximise wheel life (although in practice they may not achieve this) rather than optimising wheel and rail wear at the interface. Where new rolling stock makes up a significant proportion of the traffic along a route, disproportionate damage can be caused to the rail, particularly from RCF and its associated performance and safety risks.

Example - Hellifield – Clitheroe Freight Increase

Current traffic is 0.35 EMGTPA, comprising 0.05 EMGTPA passenger and 0.30 EMGTPA freight traffic. Current use of the line is mainly as a diversionary route.

Existing construction is mainly timber sleepered jointed track, which can be sustained under the current traffic with spot resleepering and manual geometry maintenance.

From the December 2008 timetable, up to 6 loaded coal trains per day are scheduled to run on the up line, because there will be insufficient capacity on the West Coast Main Line. Traffic tonnage on the up line will rise ten-fold to approximately 3.0 EMGTPA.

The proposed increase in traffic is such that the existing maintenance regime will be incapable of sustaining the track, regardless of the volume of work that is done. The only feasible option is to renew the up line with new CWR track.

The estimated cost for renewal of the up line is £10.4M in 2008/09. Current track maintenance costs for the up line are approximately £200k per annum. The variable access charge does not account for this step change in the tonnage of traffic on a timber sleepered, jointed track route which would otherwise be sustainable without the need for renewals.

Example - Wessex New Rolling Stock

Siemens 'Desiro' rolling stock has been introduced in Wessex, and now makes up approximately 60% of the passenger rolling stock operating on the area. 'Desiros' are heavier than the slam door rolling stock they have replaced. Since their introduction, Rolling Contact Fatigue (RCF) damage to the track has increased disproportionately to the tonnage.

The passenger equivalent tonnage on routes operated by 'Desiros' has increased by 25-35%, depending on the particular route considered. This has driven a proportionate increase in the rate of deterioration of the track, for example from component wear, geometry deterioration and internal rail defect propagation. This necessitates a proportionate increase in the quantity of maintenance work and shortening of track service life prior to renewal (measured in years as opposed to EMGT). The effects of this increased vertical loading are well outside the range that has hitherto been recovered through variable track access charges.

Furthermore, 'Desiros' have higher bogie yaw stiffness and accelerate faster than the old rolling stock. These characteristics lead to higher wheel/rail forces and greater wear on switches and curved plain line. RCF damage on the area is estimated to have increased approximately three-fold. Modelling by TTCl gives an estimated 3.5x increase in RCF damage. Rail replacement costs on Wessex due to RCF are now approaching £10M per annum, taking no account of the cost of train delays or the consequences of other maintenance work lost at short notice. Over the last 12 months, approximately 20% of the switches on the Clapham maintenance area have required replacement due to wear, at a cost of approximately £1.5M. The variable access charge does not account for this step change in the type and nature of rolling stock and its effect on wheel/rail forces.

Funding and planning implications

There may be some maintenance costs that are not covered by the change in income from variable track usage charges in the above and similar cases. However, the biggest issue relates to additional capital expenditure, including renewals that would have otherwise been completely avoided and unplanned investment to upgrade the capability of the line.

In terms of this additional capital expenditure, the rolling RAB or equivalent mechanism could deal with this. In the absence of such a mechanism, we note that Network Rail would not be able to deliver significant changes in traffic of the types set out above within the funding settlement.

Irrespective of this, we believe that industry processes need to be put in place to allow for efficient and effective planning to consider and implement such changes.

We intend to write to ORR separately on this issue.

Appendix 7 Derivation of Fixed Track Access Charges

Overview and introduction

This note describes the calculation of the draft FTACs prepared for the SBP update.

The following abbreviations are used in this note:

- ACS Access Charge Supplement
- FTAC Fixed Track Access Charge
- ICM Infrastructure Cost Model
- NR Network Rail
- RAB Regulatory Asset Base
- RRR Residual Revenue Requirement
- SBP NR's October 2007 Strategic Business Plan, updated in April 2008.
- SRS Strategic Route Sections
- TOC Franchised passenger train operating company (so excluding open access operators)
- TRR Total Revenue Requirement

It builds on the detailed methodology paper (FTAC outline approach - v04_070626.doc) that Network Rail previously supplied to ORR for comment on 2nd July 2007.

The majority of the calculation to allocate the FTAC is performed by an Access database that is heavily dependent upon links to the live ICM model, in particular the traffic module and the summary results data store.

Key assumptions and principles

At this stage it has been assumed that the entire RRR resulting from the "single till calculation" is paid through TOC FTACs, and that there is no direct grant from government as in CP3.

All costs, whether "pay as you go" or RAB related, and all incomes, whether track access related or not, are kept completely separate between England/Wales and Scotland.

- The RRR for Scotland – comprising the total across all Scottish SRS and allocations of national overheads consistent with agreed metrics – is all allocated to the "Scotrail" TOC, and none to "English" TOCs who run north of the border (eg, NXEC, Virgin);
- The RRR for England / Wales is allocated between all other TOCs excluding "Scotrail".

It has also been assumed that, consistent with previous regulatory determinations:

- the estimated amount of Schedule 4 cost will be funded by an equal and opposite amount – ex ante - of Schedule 4 ACS, such that the amount of Schedule 4 cost assumed does not affect the FTAC allocation calculation at all; and
- similarly that money flows associated with the core Schedule 8 performance regime have no impact on the level of TOC FTACs, as the regime will be re-calibrated to have – ex ante – a neutral financial outcome during CP4.

Step 1: calculate traffic allocation metrics

For each SRS, and also for each National Funder (England/Wales and Scotland) the model calculates the % share of each of the following metrics contributed by each TOC:

- Tonne KM
- Equivalent Tonne KM
- Train KM
- Vehicle KM
- Electric train KM
- Electric vehicle KM
- EC4T consumption

The user is able to select any one of these metrics to allocate the costs in each allocation pot between TOCs.

Step 2: maintenance costs, operating costs, and income (“Pay as you go”)

The model performs the following processing steps:

- The forecast level of maintenance cost, operating cost and income is extracted from the other ICM modules for the 5 CP4 years at the lowest available level of detail¹. For all maintenance and income lines this is SRS, whilst for Opex lines it is “National Funder”.
- There is one exception to the “lowest available” rule, and that is EC4T income, which is consolidated to National Funder level in order to be offset against EC4T cost, modelled as a National Funder total only. This ensures that the “un-recovered” difference, primarily non traction electricity costs such as those at some stations and depots, are treated as a national overhead to be shared according to a user selected allocation metric, rather than shared only between operators running electrically powered services.
- Other items not modelled in the ICM, such as the tax line, and adjustments such as the income that is “hardwired” to Chiltern’s FTAC (relating to the agreement paying for the Chiltern Evergreen enhancement project) are also imported and processed.
- Each extracted line of data is tagged to the relevant “Allocation Pot” according to the choices specified by the user.

Step 3: amortisation of and return on the RAB

The model performs the following processing steps:

- The NR financial model (itself supplied by the NR ICM with the forecast profile of renewals and enhancement expenditure) provides the FTAC module with calculated 5 year profiles of 4 different lines of RAB related allowed cost; the amount of amortisation on the RAB, and the return on the RAB, separately for England / Wales and Scotland.
- The FTAC allocation module uses results data from every ICM renewals module to calculate the modelled long run (35 years) pre-efficient average rate of renewal expenditure on each main asset type (e.g. track, signalling, civils, operational property etc.) and SRS. These long run averages are used to calculate a % split by SRS and asset type for each of England / Wales and Scotland.
- Note that RAB related costs attributable to investment in franchised stations is kept in separate Allocation Pots from investment in other parts of the operational property

¹ Franchised stations income from the proposed new fixed station charge and franchised station lease income is excluded from this step and is dealt with differently as described below.

portfolio. This is in order to allow the resulting allowed costs to be allocated directly to Station Facilities Owners (SFO).

- The % splits above are applied to the 4 profiles taken from the financial model to disaggregate them into a breakdown by SRS and asset type. This disaggregated RAB related allowed cost is then tagged to the relevant “Allocation Pot” in the same way as the “Pay as you go” costs and incomes described above.

Step 4: cost allocation to franchise train operators

The model performs the following processing steps:

- The various costs (“Pay as you go” and “RAB related”) and incomes collected in each Allocation Pot (for each National Funder or SRS) are consolidated into a single net cost or income.
- The net cost or income in each SRS Allocation Pot (excluding those relating to franchised stations costs and income) is allocated between the TOC operating on that SRS according to the traffic allocation metric specified in table 1 below.
- Net costs in any Allocation Pot for the “National Funder” Scotland are all attributed to the operator Scotrail.
- Net costs in any Allocation Pot for the “National Funder” England / Wales are allocated between all TOCs except Scotrail according to the same traffic allocation metric referred to above, but calculated at the total England / Wales level, not by SRS.
- The database then uses a final error trapping step to ensure that the total amount of cost allocated between TOCs is exactly equal to the total amount of net cost collected in the Allocation Pots. Performed as a small percentage uplift (currently between 1 and 1.5% of the total cost), this calculation is required to handle “quirks”, especially places on the network where no traffic totals have been recorded against TOCs for the metric used to allocate a certain category of cost. Good examples of this include electrification asset costs between London Paddington and Airport Junction, and costs on freight only SRSs never used by TOC diversions that are not fully recovered through freight income. As with all other calculation steps, Scottish costs are kept separate from those for England and Wales.

Step 5: final calculations

The model performs the following processing steps:

- The first step is to re-align the raw charges between operators to reflect franchise remapping and ownership changes since the point at which the traffic totals were originally recorded (end of the railway year 2006/07). Charges calculated for Central Trains, Virgin Cross Country, Midland Mainline and Silverlink are replaced with charges for East Midlands, London Midland, London Overground and Arriva Cross Country.
- The income from the SFO station fixed charge and the franchise station lease income is then deducted from each TOC FTAC figure.

Table 1 – Description of use of allocation pots and initial choice of allocation metric

ALLOCPOT	Used for allocation of	Traffic metric
National_ConOH	Controllable overheads (National level)	Vehicle_km
National_EC4Tnet	National EC4T cost net of EC4T income	Vehicle_km
National_MaintenanceOther	Other maintenance costs (National level)	Vehicle_km
National_NCOther	Other non controllable overheads (excluding EC4T, at National level)	Vehicle_km
National_Other	Miscellaneous other adjustments (National level)	Vehicle_km
National_SigStaff	National total signalling staff payroll and related employment costs	Train_km
SRS_Elec	Costs and incomes relating to electrification assets on specific SRSs	Electric_Vehicle_km
SRS_Other	Other (net) costs modelled at SRS level	Vehicle_km
SRS_OtherIncome	Other income modelled at SRS level	Vehicle_km
SRS_Pway	Costs and incomes relating to permanent way assets on specific SRSs	EMGTPA_km
SRS_SandT	Costs and incomes relating to signalling and telecoms assets on specific SRSs	Train_km

Table 2 – Grouping of renewals spend types and assignment to allocation pot

FTAC Renew Group	Description	Allocation Pot
CIVREN	Civils renewals spend	SRS_Pway
ELEREN	Electrification renewals spend	SRS_Elec
ELEREN_NoEff	As above, but not subject to efficiency	SRS_Elec
OPROTH	Operational property renewals spend	SRS_Other
PaMRen	Plant and machinery renewals spend	SRS_Other
PaMRen_NoEff	As above, but not subject to efficiency	SRS_Other
SIGREN	Signalling renewals spend	SRS_SandT
STAFRA	Franchised stations renewals spend	Bespoke_FranchiseStationRAB
STAMAN	Managed stations renewals spend	National_Other
TelRen	Telecoms renewals spend	SRS_SandT
TelRen_NoEff	As above, but not subject to efficiency	SRS_SandT
TRKREN	Track renewals spend	SRS_Pway