15. Overall Incentives

Key messages in this chapter

- Incentivising efficient behaviour is at the core of PR13. We are putting in place substantial improvements to our package of incentives which comprise charges, financial and contractual incentives. These incentives impact not just on Network Rail but the whole industry.
- We are improving the variable usage charge so that it better reflects the extent to which use of different vehicles drives cost; ensuring that Network Rail bears more of the cost of traction electricity transmission losses which it can manage and establishing a new 'freight specific charge' so that a greater proportion of the costs that freight generates are recovered from haulage of commodities that can bear such an increase – electricity supply industry coal, spent nuclear fuel, and iron ore.
- Improvements to financial incentives include a new regional efficiency benefit sharing mechanism to encourage Network Rail and train operators to work together to reduce costs, and strengthening the volume incentive to encourage Network Rail to act more commercially in deciding how to encourage extra traffic.
- We are updating Schedules 4 and 8 payment rates and Schedule 8 benchmarks so they act as effective compensation and incentive regimes, to reduce disruption to passengers and freight customers.

Introduction

15.1 Many elements of our PR13 proposals have incentive properties and there has been discussion of incentives in previous chapters relating to outputs, expenditure and financing. But our core incentives package comprises charges and financial and contractual incentives.

15.2 The next chapter, chapter 16, covers access charges. But part of Network Rail's revenue requirement is provided by network grant in lieu of access charges – this is discussed in chapter 17. Other single till income is netted off of gross revenue to calculate the net revenue requirement and this is discussed in chapter 18. Chapters 19 and 20 consider financial and contractual incentives.

15.3 This chapter briefly describes the purpose of incentives and why regulatory intervention is required. It then describes the main types of incentives which we use to incentivise efficient behaviours both in Network Rail and more widely in the industry.

Purpose of incentives

15.4 Most markets and industries respond to incentives that result from the normal operation of the market. But in the rail sector, as with other monopoly network industries, there is the potential for 'market failure' arising from:

(a) **market power** – Network Rail is the provider of access to the mainline rail network and any company with such a monopoly or market power has an incentive to price higher than a competitive industry would and to provide less output which may be of a lower quality than that which would be provided in a competitive market; and

(b) **network externalities** – infrastructure networks, including the rail network, are complex and individual companies' use of them is likely to impose costs or benefits on other users. These impacts on third parties are known as external costs or benefits. Even if this were not the case, it is unlikely that the complexities of arranging use of the network could be resolved entirely through bilateral arrangements between operating companies and Network Rail. There are likely also to be other external costs or benefits, such as congestion, pollution or accidents, to third parties other than the rail industry and its customers.

15.5 Regulatory intervention is often considered to be required to address these market failures. In the rail industry this intervention takes the form of the implementation of regulatory incentive mechanisms which include charges, financial and contractual incentives.

Types of incentives

Charges

15.6 The standard regulatory response to market power is to control the company's prices so that overall revenues are not set above total costs. It may also involve specifying the quantity and quality of its output. These principles underlie our approach to establishing our PR13 determination.

15.7 Regulation attempts to ensure that unit prices are set at the marginal cost[254] of providing the unit of output. These cost-reflective prices incentivise efficiency by encouraging customers to purchase output if and only if the value of it to them exceeds the cost and by encouraging Network Rail to provide the product if and only if the value to customers exceeds the cost[255]. This principle underlies our consideration of access charges in the chapters which follow.

15.8 The principle of cost-reflective pricing may result in total revenue that differs from total costs. Indeed, the sum of revenues from Network Rail's present variable access charges falls far short of its total revenue requirement because it incurs a large proportion of fixed and common costs regardless of how much traffic runs on its network. In Network Rail's case, the difference between variable charges and its total revenue requirement is met by a combination of network grants from the governments and fixed access charges.

15.9 Charges can also be used to take account of costs and benefits that are external to the sector. These are losses and gains to third parties that are not necessarily taken into account by the industry or its customers unless an incentive is introduced to enable them to do so. Examples relevant to the rail industry include the relief of congestion on the road, environmental pollution, and the encouragement of innovation, research and development.

15.10 Environmental issues are an important feature of our duties. Environmental costs may be included in the prices of inputs used in the industry. An example is that the electricity prices that determine train traction electricity charges include the cost of purchasing allowances under the EU emissions trading scheme.

Financial incentives

15.11 If its revenue is limited to be equal to what is necessary to recover its costs, a company that does not face competition no longer has an incentive to control costs and so a separate regulatory mechanism is necessary to give it one. The mechanism for Network Rail is that we incentivise it to outperform our determination, which will benefit customers and funders. The setting of outputs and revenue and the process of

[254] Marginal cost is the increment to cost that results from producing an additional unit of output.

[255] This sort of efficiency, concerned with producing the right thing, is known as 'allocative efficiency' and is distinguished from 'productive efficiency' or producing at least cost.

incentivising cost performance have been discussed at length in earlier parts of this determination but one aspect, the regional efficiency benefit sharing mechanism, represents a new financial incentive for CP5, described in the financial incentives chapter (chapter 19).

15.12 Network Rail's unit charges do not cover all the costs of providing capacity and so we need to consider how it responds to requests for extra capacity. In a more commercial setting, Network Rail would charge prices which are set above its short run costs so that it would profit by selling more of what its customers wanted i.e. the use of network capacity. In the case of Network Rail, it also faces incentives in relation to train service punctuality outputs and so it may actually face a disincentive to make additional capacity available. So there is an existing volume incentive mechanism which is designed to encourage Network Rail to make trade-offs when deciding whether to meet unexpected demand similar to those which a company operating in a more commercial setting would make. We are improving the volume incentive for CP5, and this is described in full later in the financial incentives chapter (chapter 19).

Contractual incentives

15.13 There are well established mechanisms through which important aspects of network management are undertaken through contractual incentives. These take the form of administered charges set to reflect the external costs caused to other units of the network. The possessions and performance regimes chapter (chapter 20) discusses:

(a) the incentives in the 'Schedule 4' possessions regime through which compensation is paid to operators when they are unable to use parts of the network, due to planned restrictions of use, typically because engineering work is being carried out; and

(b) the incentives in the 'Schedule 8' performance regime through which operators are compensated for the costs of delay and cancellations imposed by others, including Network Rail.

15.14 The charges chapter discusses the 'capacity charge' which is levied on train operating companies to compensate Network Rail for the additional Schedule 8 delay payments it is expected to have to make to other operating companies as a result of the additional congestion caused by additional traffic.

16. Access charges

Key messages in this chapter

- This chapter is our draft determination with respect to track access charges and regulated station charges.
- It is our role to set the framework within which Network Rail has responsibility for calculating its track access charges. It has undertaken a major programme of work with extensive consultation and industry engagement.
- In setting the framework for charges, we are seeking to improve the extent to which charges reflect costs. In 2011-12 freight accounted for around 7% of all train km and around 25% of all gross tonne km moved on the network. But in CP4 Network Rail received less than 1% of its revenue from freight. Freight access charges currently cover less than 30% of the costs associated with freight; other users and taxpayers make up the difference.
- The industry currently receives around £4bn per year of public subsidy (most of this payment directly from government in lieu of fixed track access charges that would otherwise be paid by TOCs). By ensuring that a greater proportion of Network Rail's costs are recovered through charges, we could reduce the company's reliance on public funding.
- By making charges more cost reflective we will improve incentives for Network Rail to manage provision of network capacity more efficiently, and on its customers to use that capacity efficiently. It will also improve incentives on Network Rail's customers to work with Network Rail to reduce costs where they can.
- These efficiencies will further improve value for money for funders and users.
- The changes we are making to charges for CP5 are significant but not extensive. In particular we are: accepting new evidence on the variable usage charge so that it better reflects the extent to which use of different vehicles drives cost; ensuring that Network Rail bears more of the risk of traction electricity transmission losses, which it can manage; establishing a new 'freight specific charge' so that a greater proportion of the costs that freight generates are recovered from haulage of commodities that can bear such an increase – ESI coal, spent nuclear fuel, and iron ore.

Key messages in this chapter (continued)

- We recognise that changes to charges can significantly affect passenger and freight operators and their customers. In reaching our decisions we have had extensive discussions with stakeholders, have considered these impacts and have taken pragmatic steps to mitigate them.
- For example, our new freight specific charge is at a much lower level than the cap we set in January and will be phased in more gradually – not coming in until 2016 and rising gradually in CP5 to reach only 50% of what would have been its final level if we had fully implemented the charge on the basis of latest cost estimates.
- Further, we have decided not to impose the freight specific charge on biomass in CP5.
- We have concluded that we will not implement the recalibrated capacity charges as part of PR13. We will instead either implement the alternative proposal put forward by freight operators (possibly applying it also to open access passenger operators and/or franchise passenger operators, having regard to their views on this), or approve capacity charge rates that have been calculated using the methodology established in CP4, uprated for inflation.
- We have also concluded on imposing a cap on the increase in the average VUC for freight that is significantly below that which we set in January 2013, and which will be phased in. Passenger services do not face substantial increases in charges, and we have concluded that cost reflective VUC can be implemented for all passenger services from the start of CP5 in full. In our view, it would be beneficial for new franchises to expose TOCs to changes in charges, strengthening their incentives to work with Network Rail to reduce its costs.
- We estimate that average total franchise passenger variable charges and open access charges will each increase by 1% from CP4 to CP5 in real terms, and with consistent levels of traffic and electricity prices.
- We estimate that average total freight charges will increase by 21% from CP4 to the end of CP5 (or 9% from CP4 to the CP5 average), in real terms and with consistent levels of traffic and electricity prices. This equates to an increase in charges of 4% per year, real, in each year of the period.
- All these charges are lower than they would have been without our efficiency challenge to Network Rail, which has resulted in a reduction in some charges of 9% compared to Network Rail's draft price lists.

Key messages in this chapter (continued)

- We will shortly consult on options to allow passenger open access operators greater access to the network in return for some contribution to fixed costs.
- We will do more work in the early part of CP5 to improve our understanding of costs and consider how they might be better reflected in charges (including the capacity charge). We will work with the industry, and also with passenger groups and freight customers, as appropriate, in conducting this review.
- Network Rail will reissue its draft price lists, consistent with our draft determination, on or before 12 July 2013.

Introduction

16.1 In this chapter we conclude on the access charges paid by Network Rail's customers that are within the scope of PR13[256]. They include:

(a) track access charges paid by franchised passenger train operators, open access passenger train operators and charter passenger train operators;

(b) track access charges paid by freight train operators; and

(c) station long term charges paid by the users of franchised stations and the 17 Network Rail 'managed' stations.

16.2 It is important that Network Rail's charges truly reflect the costs they are designed to recover. In this way, charges provide the best possible signals to Network Rail and to its customers about the provision and use of infrastructure services. This in turn drives efficient use of resources, both in terms of existing infrastructure and the provision of new capacity, and incentives to reduce costs where possible.

16.3 In PR13, Network Rail has undertaken a thorough review of the costs which the charges are set to recover, and on that basis calculated the implied charges. We have largely held the structure of charges constant, with two exceptions:

[256] Access charges not within the scope of PR13 are those in access contracts either exempt from regulation (such as the non-stopping Paddington to Heathrow services operated by Heathrow Express) or those that do not contain a contractual reopener permitting a periodic review by ORR of the charges (such as depot access agreements and connection contracts).

16.4 The first is the introduction of a new freight specific charge on certain commodities. In CP4, freight accounted for around 7% of all train kms and 24% of gross tonne kilometres on the network, generating costs of roughly £280m per year. And yet less than 1% of Network Rail's revenue comes from rail freight. While we recognise that there are good reasons for subsidising rail freight, there are some parts of the rail freight sector that could make a greater contribution to the costs they impose on the network. This charge represents a small increase in their contribution and a greater exposure to the costs they generate.

16.5 The second is a set of changes relating to the treatment of the costs of electricity for traction, in particular relating to incentives for on-train metering and for Network Rail to manage electricity transmission losses. These changes will increase Network Rail's exposure to the costs associated with transmission losses, improving incentives to reduce these losses, increasing efficiency and benefitting the environment.

16.6 Furthermore, where Network Rail has provided better evidence in relation to cost drivers, we are implementing changes to existing charges in a way that broadly reflects the relative importance of different factors in driving cost. This will result, for example, in different relativities between the different variable usage charges for different vehicle types.

16.7 By increasing the extent to which Network Rail's charges reflect cost in this way, we improve incentives for efficiency, improve value for money for users and funders, and reduce the reliance of the railway on public subsidy, which is currently running at more than £4bn per year.

16.8 In relation to all these changes and having regard to our statutory duties, we have taken account of the impact, not only on passenger and freight operators but also on their customers. Where appropriate, for example in relation to the freight specific charge, this has caused us to mitigate their impacts, for example by phasing in over a longer period.

16.9 Following PR13, we will conduct an extensive review of the structure of charges in the early stages of CP5 with a view to improving cost reflectivity[257]. Our aim in undertaking this work is to get a better understanding of infrastructure costs and their

[257] We set this out in *Volume incentive consultation*, ORR, December 2012, http://www.rail-reg.gov.uk/pr13/consultations/volume-incentive.php.

drivers, and to identify scope for charges to send better signals for efficient provision and use of network capacity, and for more efficient cost recovery, ultimately improving value for money. We are keen that the work should look at the balance between recovery of costs from network grant, fixed charges and variable charges. Recognising the potential significance of this review for Network Rail, its customers and their customers we intend to work with the industry on it, for example involving the RDG Contractual and Regulatory Reform sub-group.

16.10 This chapter is structured as follows:

(a) background to the access charges framework;

(b) brief overview of the level of charges in CP4;

(c) description of our general approach to assessing Network Rail's charging proposals;

(d) description of how we have taken account of our decisions for efficiency in determining the level of charges;

(e) the method of calculation and charge levels for each of the charges for 'costs directly incurred':

(i) variable usage charge (VUC);

(ii) capacity charge;

(iii) coal spillage charge;

(iv) traction electricity charge; and

(v) electrification asset usage charge (EAUC);

(f) the method of calculation and charge levels for the 'mark-up' which is levied on certain types of freight traffic (in addition to charges for costs directly incurred), via:

(i) the freight only line (FOL) charge; and

(ii) freight specific charge (FSC);

(g) the method of calculation and levels of the fixed track access charges (FTAC) payable by franchised passenger operators;

(h) the method of calculation and charge levels for station long term charge (LTC);

(i) our consultation on charges relating to on-rail competition between passenger services;

(j) issues specific to charter services;

(k) the role of traffic forecasts in these proposals;

(l) implementation issues;

(m) what our conclusions mean for different stakeholders:

(i) franchise passenger services;

(ii) freight services; and

(iii) open access services;

(n) next steps.

16.11 Consistent with the rest of this document, all values are in 2012-13 prices unless otherwise stated. In addition, costs and charges for CP5 are presented at end of CP5 levels of efficiency (which is the basis on which charges for CP5 will be levied) unless otherwise stated.

Background

16.12 Charges provide:

(a) Cost recovery: A mechanism for Network Rail to recover the efficient costs it incurs in providing track and station infrastructure used by train operators;

(b) Signals for efficiency of use: Users make better use of products, including capacity, by responding to signals sent through prices based on cost. Charges provide signals to train operators, their suppliers and funders for the efficient use and development of vehicles and the infrastructure;

(c) Signals for cost efficiency and allocation: Charges allow costs to be allocated. Where charges allocate costs to those who have caused them to be incurred they provide an incentive to reduce those costs; and

(d) Signals for efficient provision of goods and services: Charges send signals to providers as to the goods and services they should provide. In this case, charges could provide an incentive to Network Rail to respond to signals sent by users through prices and their consumption decisions about what they are willing to

pay for and what Network Rail should therefore provide (as long as those charges cover the cost of provision).

16.13 Charges are therefore an important means through which information and incentives can be provided to encourage improvements in efficiency, and therefore the value for money provided by the railway. Where charges are not cost-reflective, the incentives on both providers and users of the infrastructure to act commercially are weakened.

16.14 Under the charging principles set out in EU legislation, transposed into the Railway Infrastructure (Access and Management) Regulations 2005, the track access charges that each operator pays are calculated to reflect the costs that Network Rail incurs as a result of allowing that operator's services to operate on the network. These costs include wear and tear of Network Rail's assets, and also those Schedule 8 costs that vary with traffic that Network Rail recovers through the capacity charge.

16.15 Exceptions to these charging principles are permitted in certain narrowly defined circumstances. One such exception is that of a mark-up, where the charge is above that of the costs directly incurred, which is permitted so that a greater proportion of Network Rail's costs are recovered through charges, provided that certain principles are adhered to, including that the charge does not price market segments off the network. Some freight services have paid mark-ups in CP4, and we are extending this in CP5 so that those freight services that can bear a mark-up because they do not compete with road make a greater contribution to the costs they impose on the infrastructure.

16.16 Station facility owners pay regulated station long term charges to Network Rail to enable it to recover the costs of maintaining, renewing and repairing its stations.

16.17 The FTAC recovers Network Rail's net revenue requirement. This is calculated as Network Rail's total revenue requirement net of Network Rail's variable track access charges, Network Rail's regulated station charges, network grant and other single till income[258]. FTAC is paid by franchised passenger operators only and is determined as an annual charge rather than a charge per unit of traffic.

[258] Network grant and other single till income are covered in other chapters.

Charges in CP4

16.18 As Table 16.1 shows, in 2011-12, around 90% of Network Rail's income came from those charges paid by passenger and freight operators and grant income (in lieu of FTAC that would otherwise have been paid by franchised passenger TOCs) determined as part of PR08. Around 78% came from grant income and FTAC alone, i.e. not varying according to volume

16.19 Of the variable charges, for passenger services the three charges accruing the most income in CP4 have been the VUC, the capacity charge and the charge for using EC4T. In contrast, for freight services, around 70% of income has accrued from the VUC. This is because proportionately fewer freight services use EC4T, and because of the lower capacity charge for freight reflecting, for example, freight services' use of the network at less congested times than passenger services.

Table 16.1: Network Rail Great Britain-wide income from regulated charges and grants 2011-12

(£ million, 2012-13 prices)

Charge	Franchise passenger operators	Freight operators	Open access passenger operators	Total, passenger and freight operators
VUC	154	49	3	207
EAUC	9	0	0	9
Coal spillage charge	0	2	0	2
Freight-only line charge	0	4	0	4
Traction electricity charge	206	5	3	214
Capacity charge	174	4	1	179
Total variable charges	**544**	**64**	**7**	**614**
FTAC	913	0		913
Grant income	4,108			4,108
FTAC and grant income	**5,021**			**5,021**
Station long term charge	145	0	1	146

Charge	Franchise passenger operators	Freight operators	Open access passenger operators	Total, passenger and freight operators
Total regulated charges and grant income	**5,710**	**64**	**7**	**5,781**
Total Network Rail income (includes other single till income)	**6,464**			

Notes:

1. Source: ORR analysis of Network Rail Regulatory Accounts
2. Traction electricity income from open access operators includes that from Heathrow Express and other operators not subject to other regulated variable charges.
3. Numbers may not reconcile due to rounding.

16.20 Table 16.2 lists each of the regulated access charges levied by Network Rail in CP4. The table also shows the units on which each charge is levied, for example kgtm means the charge is levied in terms of pounds or pence per thousand gross tonne mile (kgtm). With the exception of FTAC, the track access charges are not disaggregated geographically, in that the charges for a particular vehicle type, service group and commodity do not vary according to what section of route they are travelling on.

Table 16.2: Regulated access charges in CP4

Type of charge	Basis for charge	Payable in CP4 by	Unit on which charge has been levied
Charges for costs directly incurred			
VUC	Recovers maintenance and renewal costs that vary with traffic	All services	kgtm (freight) Vehicle mile (passenger)
Capacity charge	Recovers Network Rail's Schedule 8 costs that vary with traffic	All franchise passenger, open access passenger and freight services (charter do not currently pay the capacity charge)	Train mile
Coal spillage charge	Recovers the costs of coal spillage	Services that transport coal	kgtm

Type of charge	Basis for charge	Payable in CP4 by	Unit on which charge has been levied
Traction electricity charge	Recovers the costs of providing electricity for traction purposes	Electrically powered services	kWh. For services that are not metered, this is modelled per train mile for multiple units, otherwise per kgtm
Electrification asset usage charge (EAUC)	Recovers maintenance and renewal costs of electrification assets that vary with traffic	Electrically powered services	Vehicle mile (passenger) kgtm (freight)
Mark-ups			
Freight only line (FOL) charge	Recovers the fixed costs of FOLs	Services that transport electricity supply industry coal and spent nuclear fuel	kgtm
Other			
Station long term charge (LTC)	Recovers station building and civils maintenance, repair and renewal costs	Station facilities owner (who levy on services that call at stations)	Billing period
FTAC	Determined on basis of Network Rail's revenue requirement after accounting for the income received from variable track access charges, regulated station charges, other single till income and network grants.	Franchised passenger operators	Billing period

Process for determining the level of charges for CP5

16.21 Network Rail has responsibility for developing charging proposals in line with our charging objectives and guidance, which we set out in annex F of our first consultation[259]. We retain responsibility for the charging framework, i.e. for any

[259] *Our Periodic Review 2013 First Consultation Annexes*, published in May 2011, can be accessed at http://www.rail-reg.gov.uk/pr13/PDF/PR13-first-consultation-annexes.pdf.

changes to policy including the development of new charge proposals, and we also audit and approve the charges that Network Rail has calculated.

16.22 Network Rail has conducted its work calculating track access charges with a high degree of industry engagement. Network Rail has consulted and then concluded on all of its charges, and published its work. For all charges it has engaged closely with the industry throughout PR13. And it has held working groups with respect to particular technical issues, notably with respect to the methodology for allocating variable usage costs to individual vehicles and commodities, and with respect to the capacity charge.

16.23 We have reviewed Network Rail's work and its treatment of points made in response to its consultations. In addition, we have asked the independent reporters to review some of Network Rail's proposals as part of our scrutiny process.

16.24 Table 16.3 lists reports published as part of this process. Network Rail's publications on charges can be found via its PR13 web page[260].

Table 16.3: PR13 Network Rail consultations, studies and reviews on charges

Category of cost or charge	Network Rail consultation	Network Rail conclusions	Network Rail consultancy studies	Independent reporter reviews
1) Variable usage charge (VUC)				
VUC initial cost estimates and freight caps	November 2011	March 2012	N/A	Review of analysis in Network Rail's 'freight cap' consultation, by Arup, March 2012
Suspension factors	March 2012	August 2012	Various including RFCpro User Guide, University of Huddersfield, November 2012	N/A

[260] Network Rail's PR13 web page is at http://www.networkrail.co.uk/publications/delivery-plans/control-period-5/periodic-review-2013/ Network Rail's PR13 closed consultations can be accessed at http://www.networkrail.co.uk/publications/delivery-plans/control-period-5/periodic-review-2013/pr13-closed-consultations/

Category of cost or charge	Network Rail consultation	Network Rail conclusions	Network Rail consultancy studies	Independent reporter reviews
Allocation of the VUC to individual vehicles and commodities	December 2012	April 2013	VTISM[261] analysis to inform the allocation of variable usage costs to individual vehicles, by Serco, December 2012	ORR staff conducted a review
2) Capacity charge				
	July 2012	September 2012 Preliminary conclusions	N/A	N/A
		April 2013 capacity charge conclusions and draft pricelists	Recalibrating the capacity charge for CP5, Arup, May 2013	N/A
3) Traction electricity charge				
Consultation on traction electricity charge and EAUCs in CP5	September 2012	February 2013	N/A	1. EC4T transmission losses estimates review, AMCL, December 2012. 2. EC4T SBP model audit report, by Arup, June 2013
Consultation on charges for losses and regenerative braking for metered operators on the DC network	November 2012	February 2013	N/A	
4) EAUC	September 2012	February 2013 and amended June 2013	N/A	Assessment of EAUC Proposals, by AMCL, June 2013
5) Coal spillage charge	December 2012	April 2013 Addendum – not published at time of writing.	N/A	Review of Network Rail's coal spillage charge, by Arup, April 2013
6) Freight only line charge				

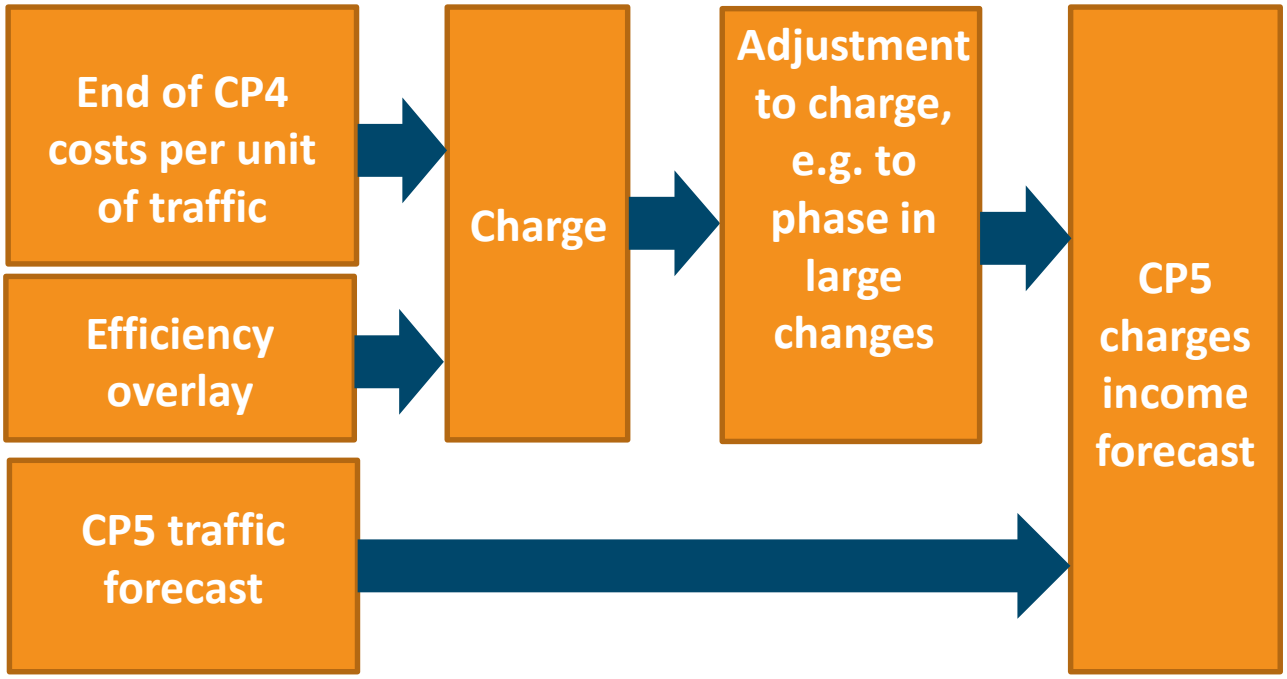
[261] Vehicle Track Interaction Strategic Model, discussed in the section on the VUC.

Category of cost or charge	Network Rail consultation	Network Rail conclusions	Network Rail consultancy studies	Independent reporter reviews
Freight only line charge initial cost estimates (part of Network Rail's consultation on freight caps)	November 2011	March 2012		Review of analysis in Network Rail's 'freight cap' consultation, by Arup, March 2012
Part of a wider consultation focusing on phasing in the freight specific charge	February 2013	April 2013	Estimating freight avoidable costs, by L.E.K, October 2012	
7) Freight specific charge				
	ORR consultation May 2012	ORR conclusions January 2013	Estimating freight avoidable costs, by L.E.K, October 2012	Review of VTISM modelling, Arup, November 2012
Phasing in of the charge and other issues	February 2013	April 2013		
8) FTAC	November 2012	March 2013	N/A	N/A
9) Station LTC	September 2012	January 2013	N/A	Various reporter studies on station costs (refer to relevant chapters).

16.25 In addition to the work undertaken by Network Rail, we have developed two main changes to the charging framework: the introduction of a freight specific charge; and amendments to the traction electricity charge. These are also listed in the above table.

16.26 Figure 16.1 shows how Network Rail's income from charges is calculated, in both the SBP and in our determination. The charge is calculated as a cost per unit of traffic to which an efficiency overlay is applied, so that the charge is equivalent to costs at end-CP5 efficiency. The income is calculated by taking the product of individual charges and their respective traffic forecasts for CP5. These calculations are made in constant prices (2012-13 prices) so do not take account of inflation.

Figure 16.1: Calculation of CP5 income for each charge



16.27 Before setting out our determination with respect to each individual charge, we first explain the efficiency overlays that we have used.

Treatment of efficiency in the estimation of charges

16.28 It is very important that Network Rail manages its assets effectively and efficiently. The decisions we have taken on efficiency for Network Rail's maintenance and renewals expenditure, as described in Chapter 8, are to be reflected in the level of charges that operators pay since charges are set to be cost reflective.

16.29 In determining our approach for CP5, consistent with the wider decisions described in Chapter 8, we have considered the efficiency overlay that should be applied to each charge. This overlay reduces the cost, calculated on the basis of end-of-CP4 costs, by the gains in efficiency we assume in our determination over the relevant period.

16.30 This section describes[262]:

(a) our approach to applying an efficiency overlay to charges in CP4;

[262] Refer to chapter 8 for further information on our decisions on efficiency for both maintenance and renewals expenditure. Chapter 8 further describes the treatment of embedded efficiencies and the methodology we have adopted in making adjustments to Network Rail's baseline.

(b) Network Rail's proposed approach to efficiency and charges in CP5;

(c) our assessment of Network Rail's CP5 proposed approach; and

(d) our determination of the approach to applying an efficiency overlay for each charge in CP5.

Treatment of efficiency in charges for CP4

16.31 In PR08 charges for each year of CP4 were calculated using our determination of long-term efficiency as an overlay. This reflected our assessment of efficiency improvement in CP4 and the further catch-up efficiency estimated for CP5. The VUC, coal spillage charge and EAUC were calculated on this basis.

16.32 The approach taken for the FOL charge was slightly different in that the charge (for the whole of CP4) was adjusted by an overlay that reflected end-of-CP4 efficiency only. This reflected the fact that the charge, distinct from other variable charges, was a mark-up, levied in order to recover some portion of fixed cost.

16.33 An efficiency overlay was not applied to Schedule 8 (performance regime) payment rates, as they are determined with reference to the financial impact of performance on train operators' revenue, and hence was not applied to the capacity charge either. No efficiency overlay was applied to traction electricity in CP4 as it was regarded as a 'non-controllable' cost.

Treatment of efficiency overlay for charges in SBP

16.34 In its SBP, Network Rail calculated charges income on the basis of end of CP5 efficiency overlay. Network Rail's approach in its SBP was to use the combined operations, maintenance and renewals end of CP5 efficiency forecast of 16% to reduce the VUC, the coal spillage charge and the FOL charge by 16%. However, following the submission of its SBP, Network Rail advised us that it had applied the *combined* operations, maintenance and renewals end of CP5 efficiency overlay in error when its intention was to apply a *weighted average* maintenance and renewals efficiency overlay, consistent with the approach in CP4. The weighted average maintenance and renewals efficiency overlay was 15%, one percentage point lower than the combined operations, maintenance and renewals efficiency figure.

16.35 For the largest element of the station long term charge, Network Rail applied a 16.1% adjustment on the same basis. However, it has since advised us that 16.6% should be used on the basis of its view of end of CP5 efficiency for station buildings renewals.

16.36 In its SBP, Network Rail calculated the income it would receive from the electrification asset usage charge (EAUC) using an efficiency adjustment of 18.3%, reflecting its view of end of CP5 efficiency for electrical power and fixed plant (renewals).

16.37 Table 16.4 shows Network Rail's efficiency proposals for its charges.

Table 16.4: Network Rail's proposed efficiency overlays for CP5 charges

Charge	Network Rail SBP efficiency overlay	Network Rail subsequent efficiency overlay
VUC	16.0%	15.0%
EAUC	18.3%	18.3%
Coal spillage charge	16.0%	15.0%
Station LTC – buildings expenditure	16.1%	16.6%
Station LTC – Stations Information and Security Systems (SISS) expenditure	15.0%	15.0%
FOL charge	16.0%	15.0%

Our treatment of the efficiency overlay for charges

16.38 Chapter 8 sets out our analysis of efficiencies available in CP5.

16.39 In determining our view of the level of income by charge, we have first calculated Network Rail's pre-efficient level of income (the "Network Rail baseline") by removing the efficiency assumed in its SBP and the efficiencies associated with Network Rail's CP5 asset policies. We have then made certain adjustments to Network Rail's baseline, consistent with our adjustments to pre-efficient expenditure (as set out in chapter 8). We then apply our view of efficiency for CP5.

16.40 We have applied our end of CP5 efficiency assumption to charges. We think that it is important that the charges are adjusted for efficiency in a way that is cost reflective. Table 16.5 shows our view of the end of CP5 level of efficiency that should be applied to each charge, on the basis of our comprehensive review of the evidence. These efficiencies are applied in each year of CP5.

Table 16.5: Our determination of efficiency overlays for CP5 charges[263]

Charge	ORR adjustment to pre-efficient expenditure	ORR efficiency overlay	Efficiency type
VUC (where not capped)	-4.4%	19.1%	weighted maintenance and renewals
EAUC	+8%	29.5%	electrical power and fixed plant maintenance and renewal
Coal spillage charge	-4.4%	19.1%	weighted maintenance and renewals
Station LTC – buildings expenditure	0% for managed stations and -6.3% to -13.6% for franchised stations	19.2% for managed stations and 23.3% for franchised stations	buildings – managed and franchised stations
Station LTC – Stations Information and Security Systems (SISS) expenditure	0.3% to -13.2%	16.2%	SISS expenditure – managed and franchised stations
Freight only line charge/Freight specific charge (where not capped)	-4.4%	19.1%	weighted maintenance and renewals

Variable usage charge

16.41 The VUC is set to equal the operating, maintenance and renewal costs that vary with traffic. In CP4, the VUC made up more than 75% of Network Rail's track access charges income from rail freight , and around 30% of variable track access charges from passenger traffic

16.42 In practice, rail infrastructure operating costs are widely understood not to vary materially with traffic, and therefore the charge was set in CP4 to recover variable maintenance and renewal costs only. Network Rail has estimated that around 85% of these variable usage costs (i.e. the costs recovered through the VUC) consist of track

[263] These are applied so that , for example, the adjustment for the EAUC is an increase of 8% and then reduction of 29.5% (approximate net impact a reduction of 21.5%, but they are applied as a product rather than a sum).

wear and tear, with the remainder consisting of civil costs and signalling. The charge does not reflect the costs of providing or changing the capability or capacity of the network.

16.43 Not all costs that vary with traffic are recovered through the VUC. The VUC recovers costs that change with marginal changes in traffic, whereas some costs change with larger increments and are not recovered through standard variable charges (though may be recovered through mark-ups). Some costs relate to subsets of traffic. In particular, as we explain later, variable costs associated with electrification assets are charged only to electrified vehicles through the EAUC; and costs associated with coal spillage are recovered through the coal spillage charge, which is only levied on coal traffic. The capacity charge is necessarily a separate charge because it is levied per train mile, rather than per vehicle mile or kgtm, reflecting the costs associated with increased congestion on the network.

16.44 The VUC is differentiated by vehicle class. This differentiation reflects the significant variation in infrastructure wear and tear costs associated with different vehicle characteristics, for example vehicle operating speed and axle weight. In the case of freight, the charge is further disaggregated by commodity type, reflecting the different axle loads associated with different commodities. The rates are averaged across the network as a whole, resulting in a single Great Britain-wide price for each permutation of vehicle type and commodity.

16.45 We consulted on geographic disaggregation of the VUC, but decided as set out in our January 2013 conclusions document[264] not to pursue this approach for CP5, reflecting concerns raised by the industry about the complexity this could introduce and the extent to which this would undermine rail freight's ability to compete with road. We will include the question of how cost drivers vary with geography and how this should be reflected in charging in our wider review of the structure of charges in the initial part of CP5.

Calculating the charge in CP5

16.46 Network Rail has used broadly the same approach for calculating the VUC in PR13 as that used in PR08. As with PR08 its recalibration of the charge VUC has comprised two stages:

[264] http://www.rail-reg.gov.uk/pr13/consultations/freight-charges.php.

(a) estimating variable usage costs for an average vehicle; and

(b) apportioning total variable usage costs between individual vehicles (or vehicles and commodities in the case of freight).

16.47 The first stage has historically been referred to as calculating total variable usage costs, and indeed it is the basis on which revenue for the VUC can be forecast. It is, however a calculation of the costs associated with a small change in traffic, measured as a rate per gross tonne km (or mile)[265]. The rate is then multiplied by total traffic across the network. This calculation would result in a good estimate of total variable usage costs if the relationship between variable usage costs and traffic were linear, but research has suggested that this may not be the case. In particular, as part of work estimating freight avoidable costs, Network Rail has estimated that the total variable usage track costs associated with freight to be substantially more than the costs recovered through the VUC, i.e. that the VUC under-recovers freight's variable costs[266]. We consider this methodology for calculating the charge (i.e. calculating the costs for a small change in traffic) is consistent with the Access and Management Regulations which set the principles which must be followed when setting access charges. It is relevant, however, in respect to equivalent discussions relating to the capacity charge where some stakeholders have expressed concern that an over recovery of costs is occurring.

Estimating variable usage costs for the average vehicle

16.48 Network Rail estimated the costs for a small change in traffic for an average vehicle using broadly the same methodology as that which it used in PR08.

16.49 Network Rail used a 'bottom-up' approach to estimating track variable usage costs. In order to derive these bottom-up estimates, Network Rail used the Vehicle Track Interaction Strategic Model (VTISM), which was developed for the cross-industry

[265] Network Rail found its estimates of increases in costs per unit of traffic to be very similar irrespective of whether it tested a 10% or 20% increase in traffic, and it has estimated the costs on that basis.

[266] The reporter Arup reviewed this work (*(November 2012) Review of Network Rail VTISM modelling and allocation to market segments for Freight Avoidable Costs*), and concluded that the total variable usage track costs associated with freight would be in the range £144m to £210m a year 35 average traffic, in 2011-12 prices and end of CP4 efficiency, of which £70m may be recovered by the variable usage charge. L.E.K. has subsequently re-estimated so that, when we convert to end-CP5 efficiency and 2012-13 prices and adjust to 2013-14 traffic, amounts to £89m to £128mm a year for all variable usage costs (not just track), excluding the costs associated with the Serco research. This compared to freight revenue from the variable usage charge in CP4 of less than £50m a year (and a capacity charge of less than £5m a year).

Vehicle/Track Systems Interface Committee (V/T SIC). VTISM directly related rolling stock and track characteristics to track damage, and thus to renewal and heavy maintenance requirements. VTISM uses engineering principles, embodied in numerical relationships, to predict track degradation and the remedial effects of heavy maintenance and renewal.

16.50 Network Rail had calibrated VTISM for its asset policies over the next 35 years. It tested track costs under current traffic levels and under incremental uniform increases in traffic levels across the network. Network Rail equated the resulting difference in cost per unit of traffic to be the track variable usage costs for the average vehicle.

16.51 For other variable usage costs (amounting to around 14% of total variable usage costs), Network Rail has taken a "top-down" approach. In particular, it disaggregated civils and signalling costs into a number of cost categories and, using a mixture of empirical evidence and engineering judgement, estimated the percentage of each cost that varied with traffic.

16.52 Network Rail consulted on its work as part of its freight caps consultation in November 2011 and concluded in March 2012. The independent reporter Arup reviewed its work and made a number of recommendations. As a result of this, Network Rail refined some small aspects of its estimates and provided more evidence to us for the basis of its assumptions. This evidence is published on its website.

16.53 We concluded that we were content with its approach as part of our January 2013 conclusions on track access charges. On the basis of this work, in our January 2013 conclusions we set a cap on the average VUC for freight. Our January 2013 document, and our earlier May 2012 consultation on the same issue, set out the technical issues and sources of evidence in some detail[267].

16.54 Subsequent to our conclusion, Network Rail updated its estimates as part of its SBP (our cap was based on earlier unit cost data). Since then, Network Rail has made some minor changes to its methodology. In particular, it reduced the cost estimate to remove some items of cost that would have otherwise been doubly recovered through both this charge and the coal spillage charge.

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[267] *Our conclusion on the variable usage charge and on a freight-specific charge*, published January 2013, can be accessed at http://www.rail-reg.gov.uk/pr13/PDF/freight-conclusions-jan-2013.pdf.

Our January 2013 decision on capping the VUC

16.55 The rail freight industry asked us for early assurance of the scale of track access charges in CP5. We agreed that this was appropriate, noting the uncertainty to the industry associated with our consultation on a new freight charge (the freight specific charge). In particular, we agreed to set a cap on the average freight VUC and we committed to our PR13 determination resulting in the average charge at or below that cap.

16.56 In our January 2013 document[268] we concluded on a cap on the VUC of £1.68 per kgtkm in 2011-12 prices for freight services. This was 5% to 7% higher than the CP4 charge, before taking account of expected improvements to efficiency, and adding a 15% confidence interval to account for uncertainty. It represented a figure that we were confident the final average VUC would not exceed. We noted that it was possible that charges would be higher than they were in CP4, but they that would not exceed the cap that we set out in that document. Our conclusion was widely interpreted as meaning a 23% average increase in the freight VUC (product of 7% and 15% increase, allowing for rounding); this interpretation was a worst case scenario and took no account of our efficiency challenge for CP5[269].

Allocating costs to individual vehicles

16.57 Network Rail's cost estimates were then allocated between each vehicle operating on the network. The allocation was achieved, as was the case in PR08, based on the levels of damage caused by rail vehicles through vertical track forces, horizontal track forces, and damage to other rail infrastructure, in particular civils and signalling.

16.58 In early 2012 Network Rail established a working group of industry representatives to decide the scope of work for improving the methodology in this area. Collaborating with the industry group, it then prepared a specification for some of the work and appointed consultants to carry it out. The remainder of the work (in particular, relating to horizontal track forces) it carried out in-house.

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[268] *Our conclusion on the variable usage charge and on a freight-specific charge*, published January 2013, can be accessed at http://www.rail-reg.gov.uk/pr13/PDF/freight-conclusions-jan-2013.pdf.

[269] Both the CP4 and CP5 charge are being set on the basis of Network Rail's efficiency for end of CP5; but our determinations of what that might be, in PR08 and PR13 respectively, differ.

Allocating vertical track damage costs to individual vehicles

16.59 Network Rail appointed Serco Technical Services (Serco) to undertake a study using VTISM to inform the allocation of track damage from vehicle forecasts between individual vehicle classes and commodities on a national average basis. Track damage from vertical forces amounts to around 70% of all track variable usage costs. Network Rail also asked Serco to review the allocation of civils and signalling costs.

16.60 Serco proposed a revised approach for apportioning vertical track costs to individual vehicles. Serco's analysis showed that relative to Network Rail's PR08 allocation methodology, the track damage associated with vertical forces resulting from heavy axle loads was higher and that track was less sensitive to vehicle speed[270]. Network Rail estimated that applying this research would increase the VUC for certain laden freight wagons, particularly bulk wagons, between 50% and 100%.

16.61 Network Rail explained in its April 2013 conclusions on the allocation of the VUC[271] that it considered the work carried out by Serco was a robust piece of analysis that represents a step-change improvement in the understanding of the drivers of vertical track damage. However, it stated that "following careful consideration of consultation responses, we consider that changes to charges of this scale would be inappropriate to introduce in CP5. The primary reason for our conclusion in this regard is because of the combined effect that these price changes would have with ORR's new FSC…we are proposing that, as part of the wider charges review that the industry has committed to in early CP5 to inform CP6, the revised equivalent track damage equation developed by Serco should be adopted from the start of CP6."

Allocating horizontal track damage to individual vehicles

16.62 Network Rail estimated that horizontal track variable usage costs make up around 30% of total track variable usage costs. For CP5 Network Rail carried out work to update the CP4 methodology in order to improve the accuracy of the apportionment of horizontal track variable usage costs. Its revised approach incorporated a new damage calculation methodology and parameters.

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[270] Serco's VTISM analysis to inform the allocation of variable usage costs to individual vehicles, published in December 2012, can be accessed at http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784406.

[271] The Network Rail conclusions document is available at http://www.networkrail.co.uk/publications/delivery-plans/control-period-5/periodic-review-2013/pr13-closed-consultations/.

16.63 Network Rail stated in its April 2013 conclusions document that it considered the revised methodology was robust and represented a significant improvement over PR08. But in the light of its conclusion that the adoption of the findings from Serco to allocate the vertical track damage costs should be deferred until CP6, Network Rail argued in its April 2013 conclusions that that it would inappropriate to introduce the revised methodology.

Allocating other variable usage costs to individual vehicles

16.64 Network Rail has estimated that civils and signalling variable usage costs make up around 10% and 5% of total variable usage costs, respectively. The Serco study also recommended changes to the methodologies for apportioning other variable usage costs to individual vehicles. The recommendations were:

(a) to use the revised Serco equivalent track damage equation for apportioning variable usage costs for embankments, culverts and masonry underbridges;

(b) to use the civils methodology for apportioning variable usage costs for metallic underbridges, but with a modification to one of the parameters (the modified axle load exponent); and

(c) to apportion 50% of the signalling costs on the basis of vehicle mileage, and the other 50% on the basis of the (revised) equivalent track damage equation (in CP4 all signalling costs were allocated on the basis of the equivalent track damage equation).

16.65 In its April 2013 conclusions, Network Rail decided not to implement the revised methodology in CP5, instead retaining the CP4 methodology, on the basis that doing this was consistent with its decision not to implement the revised methodologies for apportioning track variable costs.

Suspension bands

16.66 In PR08, suspension factors took the form of discounts or premia applied to the VUC for each freight vehicle on the basis of descriptions of bogie type. The aim of this was to provide a discount for those vehicles which used 'track friendly' bogies[272] and hence an incentive for their use. In CP4, Network Rail conducted work and concluded on a new approach to determine suspension factors. The new approach uses a metric

[272] A bogie is a framework connected to the underside of the vehicle to which the wheels are attached.

(the ride force count or RFC) rather than qualitative descriptions for calculating the impact of suspensions on track damage.

16.67 We confirmed our acceptance of this approach first by letter[273], where we set out the conclusions in some detail, and then as part of our January 2013 conclusions on track access charges. The new approach will apply to vehicles which start running on the network during CP5 and vehicles that have been opted in by a party that has provided the requisite data on vehicle characteristics to Network Rail as part of PR13.

Network Rail's SBP forecast

16.68 Network Rail forecast VUC income for CP5 after it had concluded on its methodology for calculating total variable usage costs but before it had concluded on its methodology for allocating costs to individual vehicles. Network Rail's forecasts used an average (passenger and freight) uplift factor in order to estimate the level of CP5 VUC income for passenger and freight. They are presented in Table 16.6.

Table 16.6: Network Rail's SBP estimated VUC income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Franchised passenger	186.5	187.4	188.3	191	191.9	945.1
Freight	63.4	65.1	69.2	71.4	73.9	343.0
Open access passenger	3.0	3.0	3.0	3.0	3.1	15.1
England & Wales						
Franchised passenger	172.1	172.9	173.7	176.2	177.1	872.0
Freight	57.4	59.0	62.8	64.9	67.2	311.3

[273] Letter of 24 September 2012, VUC – Calculating suspension factors for CP5 for freight vehicles, http://www.rail-reg.gov.uk/pr13/PDF/vuc-suspension-bands-240912.pdf

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Open access passenger	3.0	3.0	3.0	3.0	3.1	15.1
Scotland						
Franchised passenger	14.4	14.5	14.5	14.7	14.8	72.9
Freight	6	6.2	6.3	6.5	6.7	31.7
Open access passenger	0.0	0.0	0.0	0.0	0.0	0.0

Note: numbers may not reconcile due to rounding.

Treatment of the Serco analysis in allocating variable usage costs to individual vehicles

16.69 We were supportive of the Serco work, and its contribution to a better understanding of cost drivers. We were keen to understand the significance and robustness of the Serco work. We conducted a review using a multi-disciplinary team, and have prepared a paper setting out the process we followed and the content of our review[274]. The Serco research into vertical track damage was intended to replace a quantitative relationship between vehicle characteristics and vertical track damage that was in excess of ten years old. We agreed with Network Rail's view that the research was robust and represented a step change improvement in the measurement of vertical track damage. Table 16.7 illustrates how the change would bring the measurement of vertical track damage with respect to axle load into line with research conducted elsewhere. The exponent determines the relationship between axle load and cost such that, all else being equal, cost per gross tonne mile is proportional to axle load to the power of the exponent; an exponent of 1 means that a vehicle with double the axle load causes twice the amount of damage.

[274] This will be made available shortly after we publish our draft determination, at http://www.rail-reg.gov.uk/pr13/consultations/draft-determination.php.

Table 16.7: Summary of axle load exponents

	Exponent	Exponent including gross tonnage
VUC CP4	0.49	1.49
Serco analysis for CP5	1.13	2.13
Railway Group Standards EMGTPA	1.00	2.00
Öberg and Andersson	Up to 3.0	Up to 4.0
UIC Code 714	1.00	2.00

Source: TTCI research on VUC for CP4[275]; Serco analysis for CP5.

16.70 We wrote to Network Rail in April 2013[276] stating that without clear reasoning to the contrary, we consider disregarding research that improves the cost reflectivity of charges to be inconsistent with the charging objectives that we had set, and doing so inhibited us from being able to assess the most appropriate charging package for CP5. We asked Network Rail to recalculate the VUC using the PR13 research findings on apportioning costs to individual vehicles, where it considered that to do so – taking account of data constraints etc – improved the cost reflectivity of the charges. Network Rail replied with revised estimates of the VUC[277]. In these revised estimates, Network Rail has:

(a) used the Serco allocation methodology for estimating vertical track forces;

(b) retained the CP4 methodology for estimating horizontal track forces. Network Rail has indicated that it has had considerable difficulty obtaining the necessary vehicle data from train operators and vehicle owners. It therefore concluded that it was impractical to implement this change at this time; and

(c) partially implemented the Serco methodology with respect to civil and signalling costs.

[275] See Table 4 of *TTCI (March 2008) Methodology to Calculate Variable Usage Charges for Control Period 4*, UK NR Report No. 08-002, http://www.networkrail.co.uk/StrategicBusinessPlan2008/TTCI_(UK)_variable_charges_methodology.pdf.

[276] Our letter can be found at http://www.rail-reg.gov.uk/pr13/consultations/freight-charges.php.

[277] http://www.networkrail.co.uk/NetworkRailresponsetoORRletter.pdf.

16.71 Network Rail set out the impact of the Serco methodology on the VUC in its letter, and a summary of this analysis is shown in Table 16.8.

Table 16.8: Network Rail calculation of average VUC

(2012-13 prices, end CP5 efficiency)

Average charge	Freight (£/kgtm)	Passenger (p/vehicle mile)
Network Rail April 2013 conclusions (no Serco)	1.80	11.6
Network Rail May 2013 with Serco	2.51	10.2
Variance	39%	-12%

Source: Network Rail letter to ORR, 3 May 2013, http://www.networkrail.co.uk/NetworkRailresponsetoORRletter.pdf.

Our determination of variable usage costs

16.72 We set out our determination of the variable usage costs in this section, and the VUC, and associated forecast Network Rail income, in the next section. The two do not necessarily equate because, for example, certain large changes to charges will be phased in.

16.73 We set out in our January conclusions that we are content with Network Rail's methodology for estimating the VUC for the average vehicle, and we set a cap on the charge on this basis.

16.74 The average VUC contained within the SBP was higher than that in Network Rail's March 2012 freight cap conclusions, reflecting some higher unit costs. These are subject to our determination for efficiency, as set out earlier in this chapter (paragraph 16.38 onwards).

16.75 We have also reviewed the Serco work with respect to vertical track damage carefully and consider its findings to be a significant improvement in the allocation of track costs to individual vehicles. Therefore we are content to accept this new methodology for calculating variable usage costs (although we have taken into account the potential effects of its immediate introduction, and are mitigating these in our decision on how changes to the VUC should be implemented)

16.76 Estimates of average variable usage costs per unit of traffic are set out in Table 16.9. These are costs rather than charges but are the basis on which the VUC is set, and

the average VUC for CP4 is shown for comparison. We have adjusted estimates from previous reports so that they are expressed with consistent units, prices and efficiencies[278].

Table 16.9: Weighted average variable usage costs

Weighted average cost (2012-13 prices)	Freight (£/kgtm)	Passenger (p/vehicle mile)	All traffic (£/kgtm)
CP4 weighted average actual charge			
Weighted average 2013-14 (source: SBP, 2013-14 forecast traffic)	1.76	9.36	1.92
CP5 weighted average estimated cost			
Network Rail March 2012 conclusions (based on PR08 determined efficiency)	2.02	-	2.16
ORR January 2013 cap (based on PR08 determined efficiency)[279]	2.32	-	-
Network Rail SBP (2014-15 forecast traffic)	2.05	10.91	2.23
Network Rail April 2013 conclusions (no Serco)	1.80	11.59	-
Network Rail May 2013 with Serco	2.51	10.24	-

Source: ORR calculations; Network Rail March 2012 freight cap conclusions; SBP; Network Rail letter to ORR, 3 May 2013, [1] http://www.networkrail.co.uk/NetworkRailresponsetoORRletter.pdf.

16.77 Table 16.10 shows Network Rail's estimates of how the Serco research impacts on estimates of variable usage costs for certain key freight commodities.

[278] Network Rail has calculated the average cost by weighting costs for individual vehicles by the amount of traffic (and hence Network Rail income) associated with that vehicle. The choice of year used to as the basis of traffic for weighting the charge does vary between some measures. This introduces some inconsistency between measures, but the effect is small.

[279] This is the £1.68 per kgtkm referred to early in the section with adjustment for prices and for PR08 efficiency and conversion from km to per mile.

Table 16.10: Network Rail's estimates of the impact of implementing Serco research on estimates of VUC for certain key commodities

	Increase in VUC resulting from implementing Serco research
Industrial Minerals	71%
Coal ESI	71%
Construction Materials	55%
Iron Ore	52%
Steel	42%
Biomass	33%
Domestic Intermodal	1%
European Intermodal	1%

Source: Network Rail letter to ORR, 3 May 2013, http://www.networkrail.co.uk/NetworkRailresponsetoORRletter.pdf.

Our determination of VUC

16.78 As we have set out, we agree with Network Rail's assessment that the Serco research, supported by benchmarking from other sources, is a robust piece of analysis that represents a step-change improvement in the understanding of the drivers of vertical track damage. We think that this analysis should be reflected in charges because it sends the right price signals to operators, customers, and others in the value chain regarding choice of vehicle and use of the infrastructure.

16.79 We are also very conscious that implementing this new research evidence, as set out above, would result in very significant increases in the VUC for some commodities. We have listened carefully to the rail freight industry's representations on this. We understand that many rail freight markets are highly competitive, not least with road haulage, and that it would take the industry and its customers some time to adjust to such changes in a way that is efficient.

16.80 We have reached our decision on the VUC with these representations in mind but also by considering the cumulative effect of the changes to all charges on operators

and their customers. In reaching our decision we have applied our statutory duties and used our judgment to apply an appropriate amount of weight to each of them.

16.81 We have concluded that:

(a) the new rates for the VUC for all passenger traffic will be implemented in full from the start of CP5. This is because these result in a decrease in the average VUC charge for passenger operators and we consider it appropriate that passenger operators benefit from the new evidence on cost drivers as soon as possible;

(b) the new rates for the VUC for freight traffic will be implemented subject to a cap on the average VUC that is lower than the cap we concluded on in our January 2013 conclusions. We consider that this is necessary to reflect the balance of our statutory duties and conclude that the cap should be 10%[280]. In balancing our statutory duties we also think that the capped average increase to the VUC for freight traffic should be phased in during CP5 on the same profile as the phasing for freight specific charge; 0% in years 1 and 2, 20% of the full charge in year 3, 60% in year 4 and 100% in year 5. This results in an average increase in the VUC in real terms of 3.6% for CP5 overall.

(c) the 10% cap referred to in (b) above should be implemented in a way that is cost reflective and does not unduly discriminate. We consider this is best achieved by first calculating the increase for each freight VUC charge as if a cap was not applied, then adjusting the increase to reflect the 10% cap in a way that is proportionate to the increase for that particular charge as compared with the average increase for all VUC freight charges. For example, if uncapped freight VUC charges were to increase on average by 30%, then to meet the 10% cap, the individual charges would increase by a third of their uncapped increase. In this way, the relativities between the different VUCs for different vehicle types better reflect the relativities in the extent to which different vehicle types drive cost.

16.82 We have made our decision with reference to cumulative changes to all track access charges, set in the context of the overall PR13 package, which we expect to deliver many important improvements in the services rail freight can provide its customers.

[280] For a constant mix of traffic, based on the last full year for which suitable traffic data are readily available (which may be 2011-12 or 2012-13).

We set out the cumulative change in charges for different types of traffic in paragraph 16.379 onwards.

16.83 Table 16.11 shows our determination of Network Rail's income from the VUC. Table 16.12 shows our estimate[281] of the weighted average VUC for franchise passenger, open access passenger and freight services, consistent with our determination.

16.84 Our decision to cap the increase in the VUC for freight means that the forecast VUC income is below that which it would be if the cost reflective charges were introduced in full, with a commensurate increase in FTAC (or grants).

Table 16.11: Our determination of forecast VUC income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total CP5
Great Britain						
Franchised passenger	166.3	167.0	167.7	170.0	170.8	841.8
Freight	54.5	56.1	60.9	65.5	70.6	307.7
Open access passenger	1.9	1.9	1.9	1.9	1.9	9.5
England & Wales						
Franchised passenger	153.4	154.1	154.7	156.9	157.6	776.7
Freight	49.3	50.8	55.3	59.5	64.2	279.1
Open access passenger	1.9	1.9	1.9	1.9	1.9	9.5
Scotland						
Franchised passenger	12.9	12.9	13.0	13.1	13.2	65.1
Freight	5.2	5.3	5.6	6.0	6.5	28.6

[281] These are broad estimates based on aggregate data. Following publication of our draft determination, Network Rail will calculate prices for individual vehicles and recalculate the average as part of this. The average will depend on mix of vehicles used.

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total CP5
Open access passenger	0.0	0.0	0.0	0.0	0.0	0.0

Note: numbers may not reconcile due to rounding.

Table 16.12: ORR conclusions: estimated weighted average VUC

Weighted average charge (2012-13 prices)	Freight (£/kgtm)	Franchise passenger (p/vehicle mile)	Open access passenger (p/vehicle mile)
CP4 weighted average actual charge			
Weighted average 2013-14 (source: SBP, 2013-14 forecast traffic)	1.76	9.36	13.28
CP5 weighted average estimated charge – ORR conclusions			
2014-15	1.76	9.32	13
2015-16	1.76	9.32	13
2016-17	1.80	9.32	13
2017-18	1.87	9.32	13
2018-19	1.94	9.32	13

Notes:

1. Source: ORR calculations using SBP and Network Rail letter to ORR, 3 May 2013, adjusted for our determination on efficiency.
2. The average freight CP5 charge is calculated using 2013-14 forecast traffic, whereas the passenger charges are calculated using 2014-15 traffic.
3. Due to data constraints, we estimate the open access charge to two significant figures only.

Other matters relating to the VUC

16.85 In this section we set out our conclusions on other policies related to the VUC on which Network Rail consulted.

Temporary default rates

16.86 In CP4, if track access charges of a freight vehicle have not been approved by ORR by the time that the vehicle has started running on the network, Network Rail instead

has levied a default rate as an interim measure[282]. There has been no equivalent in the passenger contracts which have required a specific amendment to add an interim charge for each new vehicle. There have been several vehicles for which default or interim rates have been levied in CP4, where Network Rail has not known all the vehicle characteristics needed to calculate the VUC. When the correct rate is eventually approved, Network Rail has re-charged all journeys during the control period (including those already charged at the default or interim rate) at the approved rate.

16.87 Network Rail has concluded, in its VUC April 2013 conclusions, on making the following changes to this procedure:

(a) applying a default rate to all passenger and freight vehicles;

(b) charging a default rate for the VUC only, on the presumption that other charges, which in most cases are flat rates, would be readily calculable;

(c) introducing default rate bands (e.g. locomotive or laden wagon), where the respective rate for each of these bands is the highest relevant rate on the CP5 price list.

16.88 As before, when the correct rate is eventually approved, Network Rail would re-charge all journeys during the control period previously charged at the default rate by using the new approved rate. Income already received at the default rate would be refunded (i.e. the net impact on operators will be the difference between the default and ORR new approved rate).

16.89 Network Rail has argued that the default rates should be the highest rather than average rates so that operators (and others such as rolling stock manufacturers) are incentivised to provide the correct vehicle characteristics more quickly. The process set out in the track access contracts mean that correct rates should ordinarily be calculated and approved in good time. Provided that this process is adhered to, major delays in calculating the rate would primarily be as a result of lack of information regarding a particular vehicle characteristic, which operators are best placed to

[282] This is set out in paragraph 2.2 of Schedule 7 of the track access contract, the default rate being £1.82 per kgtm.

provide. On this basis, we agree with Network Rail's conclusions to set the default rates at high levels.

16.90 Network Rail has committed, prior to commencement of CP5, to issuing guidance to stakeholders setting out the information required and details of the end-to-end process for calculating VUC rates, and to strive to work collaboratively with key stakeholders when developing this guidance. We think that such guidance is a good initiative which will be an important complementary measure to that of having the default rate.

16.91 We consider that the other changes that Network Rail has proposed make this provision more logical and equitable across categories of vehicle, and we welcome them. We will consult on the contractual changes including those would implement these conclusions on 12 July 2013.

Rates for modified vehicles

16.92 Network Rail has concluded that where a vehicle is modified mid-control period, the VUC for that vehicle should be adjusted accordingly (to reflect the changed characteristics of the vehicle). We are pleased that Network Rail has set out its intention to agree to amendments to its track access contracts on this basis: we have previously set out our support for changes to the VUC to reflect modifications to a vehicle. This form of cost reflective charging incentivises operators to undertake such modifications to reduce Network Rail's costs.

Circumstances in which an individual charge might be changed during CP5

16.93 Network Rail has consulted on and concluded on its proposal that, with the exception of vehicles that have been subject to modification, VUC rates for individual vehicles will be fixed ("locked down") for CP5. It has cited, in particular, that the industry has made reasonable endeavours to set VUC rates using a robust list of vehicle characteristics. It has set out this process in its conclusions, and we encourage operators, even at this late stage in PR13, to check that they are content with the parameters that Network Rail has used. As we have already set out, Network Rail has also prepared the methodology and calculated charges with extensive industry engagement and with careful review from us and / or our independent reporter.

16.94 In CP4, the passenger operators' model contract (but not the freight model contract) has allowed for changes to the VUC and traction electricity modelled rates in

circumstances of “manifest error” (paragraph 9.2 of Schedule 7). Given that the charges have been calculated and approved on the basis of extensive industry engagement and audit, we will remove the “manifest error” provision in the passenger contract. The PR13 process, with extensive industry engagement and audit, should ensure that the charges are compliant with the Access and Management Regulations.

Capacity charge

16.95 The capacity charge is set to reflect costs directly incurred, which means the costs that vary with traffic. Under the performance regime (Schedule 8 of the track access contract, as set out in chapter 20 of this document) Network Rail is liable for train lateness or delays and cancellations that are not the fault of other operators, in particular delays caused by Network Rail or due to other factors such as the weather. The scale of Network Rail’s Schedule 8 payments varies with traffic, however, as the volume of traffic affects Network Rail’s ability to manage the knock-on delays resulting from incidents; this variation in Schedule 8 payments is a cost directly incurred that is recovered through the capacity charge.

The capacity charge in CP4

16.96 The capacity charge was established as part of the Access Charges Review 2000. It was calculated by applying an estimated mathematical relationship to capacity utilisation (measured by the so-called Capacity Utilisation Index or CUI) and traffic volume-related delays for which Network Rail is liable (so-called Congestion-Related Reactionary Delays or CRRD). The CUI varies with traffic, and the associated change in CRRD and hence Schedule 8 payments were calculated using this relationship.

16.97 The capacity charges we determined in PR08 were derived from CUI and CRRD data compiled for the Access Charge Review 2000. The capacity charge for franchise passenger services used Schedule 8 rates consistent with those applied in CP4, whereas the capacity charge for freight services was uplifted in PR08 only for inflation.

16.98 In CP4, the capacity charge for passenger services has been levied by service group, whereas the freight capacity charge has been a flat rate for the entire network. Both charges have been subject to a weekend discount to reflect lower weekend traffic volumes.

Calculating the charge in PR13

16.99 In addition to the ORR-led recalibration of Schedule 8 rates, Network Rail has undertaken a recalibration of the capacity charge for PR13. We considered this important in the calculation of the capacity charge, and also because we consider that having an updated understanding of capacity utilisation and its relationship with delay across the network will be valuable in itself. The industry can use this updated information in work to develop charges beyond PR13. It is also a useful metric to inform ongoing work to better understand Network Rail's performance with respect to its role as a system operator.

16.100 Network Rail commissioned Arup with Imperial College to undertake the recalibration. The consultants carried out the recalibration in the following stages:

(a) they developed a dataset for 6,688 individual components of the network, referred to as constant traffic route sections, and 24 time bands across the week. They calculated the CUI (using timetable data) and the CRRD (using Schedule 8 data) for each route section and time band;

(b) they estimated the impact of capacity utilisation on delay by testing statistics relationships between the CUI and CRRD;

(c) they estimated the impact of a small change in capacity utilisation (for example, an additional train, "CUI+1") on delay on each route section during each time band, by applying the relationship between CUI and CRRD that they established;

(d) they calculated the financial cost to Network Rail of the additional delay by applying the weighted average Schedule 8 payment rate, for each route section and time band; and

(e) they aggregated the financial costs by service code, weighted by train miles, in order to estimate charges.

16.101 Arup also reviewed whether certain aspects of the CP4 capacity charging regime remained valid for CP5, including reduced charges at weekends to reflect lower weekend traffic volumes and reduced freight charges to reflect Network Rail's ability to re-route some freight trains in the event of disruption to the network.

16.102 Arup calculated substantially higher capacity charges, reflecting:

(a) significantly higher Schedule 8 payment rates for CP5 (reflecting greater associated revenue per train and other factors);

(b) higher capacity utilisation across the network on average, resulting in an increased number of capacity-related reactionary delays; and

(c) a higher proportion of freight services using more congested high value parts of the network (for example as a result of a shift from bulk to container traffic).

16.103 The recalibration of the capacity charge would, if implemented, result in very large percentage increases in the charge for freight (of the order of 400%) and some passenger operators e.g. open access (where the increase was in excess of 1,000%). Some fluctuations in individual charges relate to Network Rail's conclusion to levy the charge on passenger services at a more disaggregate level, on the basis that that was more cost reflective[283].

Network Rail's income forecasts

16.104 Network Rail's SBP was published before the recalibration of Schedule 8 and the capacity charge had been completed. Because of this, Network Rail estimated the capacity charge income forecasts for CP5 for its SBP using CP4 capacity charge rates (uplifted for inflation). Its estimates are shown in Table 16.13.

Table 16.13: Network Rail's SBP estimated capacity charge income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Franchised passenger	174.4	174.8	175.1	175.5	175.9	875.7
Freight	4.5	4.6	4.9	5.1	5.3	24.4
Open access passenger	1.1	1.1	1.1	1.1	1.1	5.5
England & Wales						
Franchised passenger	168.8	169.2	169.6	169.9	170.3	847.8

[283] In CP4, the capacity charge is levied by service group for passenger services. Network Rail concluded that for CP5 the capacity charge would be levied by service code, where each service group consists of a number of service codes.

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Freight	4.1	4.2	4.5	4.6	4.8	22.2
Open access passenger	1.1	1.1	1.1	1.1	1.1	5.5
Scotland						
Franchised passenger	5.5	5.6	5.6	5.6	5.6	27.9
Freight	0.4	0.4	0.4	0.5	0.5	2.2
Open access passenger	0.0	0.0	0.0	0.0	0.0	0

Note: numbers may not reconcile due to rounding.

16.105 In April 2013 Network Rail produced updated income forecasts incorporating the methodology developed by Arup and the draft CP5 Schedule 8 Network Rail payment rates (chapter 20 gives a precise description of these). Table 16.14 compares forecast capacity charge income for CP5 using the two sets of rates.

Table 16.14: Estimates of Network Rail's capacity charge income for Great Britain

£m, CP5 total (2012-13 prices)	Income by levying CP4 CC rates	Income by levying Arup rates
Franchised passenger	520	2,262
Freight	197	562
Open access passenger	186	513

Stakeholders' views on the capacity charge and possible alternatives

Challenges on the principle of and methodology used to calculate the capacity charge

16.106 Prior to the introduction of the capacity charge, Network Rail recovered the additional Schedule 8 costs of additional services on the network through negotiated bespoke arrangements. The capacity charge, calculated by formula, removed the considerable administrative costs associated with such arrangements.

16.107 Certain stakeholders, however, have expressed concern about the capacity charge. Some of these concerns related to its design, whereas others relate to the increased

cost it imposed on operators, relative to the bespoke system, because it has been charged to all traffic rather than, under the previous arrangements, being charged just to additional traffic.

16.108 For example, freight operators have argued that they should not pay the capacity charge on forecast traffic levels; rather they should only pay the capacity charge on traffic above forecast. This is because Schedule 8 is a benchmarked regime. In particular, reactionary delay associated with existing traffic is reflected in Network Rail Schedule 8 benchmarks, meaning that Network Rail does not incur net costs associated with existing traffic levels.

16.109 Certain freight operators have argued both as part of PR08 and PR13 that the capacity charge is unacceptable in its current form because it over recovers in that it raises revenue in excess of the total costs associated with increases in traffic, and rather it should be levied only on traffic above that forecast in our determination. We discuss the over and under recovery of costs with respect to of variable charges in the VUC section, and address this point there.

Alternative approach

16.110 In April 2013, the Rail Freight Operators' Association (RFOA) submitted an alternative approach for calculating a capacity charge for freight operators[284].

16.111 The suggested approach is based on reviewing the difference between actual and benchmarked level of traffic on a periodic basis. It would start from establishing a mileage based baseline consistent with Schedule 8 and our PR13 determination. Actual mileage would then be monitored against this baseline. Where mileage exceeds the baseline a per mile capacity charge would be levied. The charge would be levied periodically e.g. annually, via a wash up process. There would only be a payment if the calculation were positive i.e. if mileage exceeded the baseline.

16.112 In terms of financial flows, this change would mean that Network Rail would receive substantially less funds from this alternative than it would from a capacity charge because the expected revenue associated with this mechanism would be close to zero. Any net change in total forecast variable charges revenue would be offset by a change to the revenue Network Rail received from FTAC. Just as we have with the

[284] This letter will be published at http://www.rail-reg.gov.uk/pr13/Publications/key-publications-by-stakeholders.php .

volume incentive, we would need to calculate the baseline of freight traffic carefully in making these adjustments.

16.113 There is less merit in this approach for passenger operators (which are currently held harmless by franchise agreements) but the capacity charge could in principle be levied on them in the same way.

16.114 As we understand it, such an approach would allow Network Rail to recover its changes to Schedule 8 costs associated with traffic diverging from the forecast. It would be a blunter incentive than the capacity charge because it would apply to all freight operators on an equivalent basis, irrespective of the identity of the operator that had made particular service changes.

16.115 We think that RFOA's submission is a useful proposal and are open to suggestions as to how Network Rail could recover its directly incurred costs in a way that is consistent with our obligations under EU law and with our own regulatory policies.

16.116 We also received a representation from an open access passenger operator supporting the proposals and asking that it should also be applied to them.

16.117 Alongside this draft determination we are considering the proposal further, and seek views on the merits of introducing this mechanism as a substitute to retaining the existing capacity charge in CP5. We also seek views on whether this mechanism should be adopted only for freight operators or also for passenger open access and/or franchised passenger operators and on what the implications of its adoption for these operators would be.

Our assessment of Network Rail's recalibration of the capacity charge

16.118 Network Rail and Arup carried out their review and recalibration of the capacity charge with extensive industry engagement, including a capacity charge working group. Through the working group, the methodology developed has been subject to extensive scrutiny. In addition to Arup’s quality assurance, both Network Rail and we have conducted high-level sense checks of the calculations. Our view on the basis of this fairly high level engagement is that the work appears to have been carried out well and to be robust. As the recalibration has been carried out by independent consultants, Arup, with appropriate quality assurance, we were not intending to conduct a detailed audit of the work. Given the scale of the increases in the

recalibrated rates, however, we recognise that were the rates to be introduced a more detailed review and audit would be necessary.

16.119 We recognise that the capacity charge is a contentious area for freight and open access operators. We do not necessarily accept the arguments they have made against the capacity charge and believe it is important to provide incentives for Network Rail and operators in relation to the making available of capacity and its use, particularly where there is congestion. However, we do recognise that the pattern of use of the network is now very different from when the capacity charge was introduced and are concerned that further work is needed to establish whether the charge is the best way fully to reflect the value of capacity or the costs generated in its allocation and usage.

16.120 As part of our major review of charges for CP6, in which we will work closely with the industry including RDG, we are planning an extensive review of the way that charges reflect cost and in doing so incentivise efficient allocation, use and expansion of capacity. We may therefore substantially change the design or role of the capacity charge in future.

16.121 The changes arising from the Arup review are very material and we are conscious that it is undesirable for track access charges to fluctuate significantly from one periodic review to the next from the perspective of industry investment and planning.

16.122 In light of the above, we have concluded that we will not implement the recalibrated capacity charges as part of PR13. We will instead either implement the alternative proposal put forward by freight operators (possibly applying it also to open access passenger operators and/or franchise passenger operators, having regard to their views on this), or approve capacity charge rates that have been calculated using the methodology established in CP4, uprated for inflation.

16.123 If we adopt the latter approach, we expect some of the capacity charges to change as we take the opportunity to address certain anomalies identified during the course of CP4, including updating charter operators' contracts to incorporate a Schedule 8 benchmark and capacity charge. (We discuss this later in this chapter, in the section on charter traffic.)

16.124 We recognise that by setting the capacity charge below the marginal Schedule 8 cost associated with a change in traffic, we are potentially disincentivising Network Rail to

accommodate extra traffic. However, in our judgement this is preferable to introducing the recalibrated rates, given the issues set out above. We consider, however, that the volume incentive serves to offset this effect. The reduction in charges revenue associated with this decision will result in a commensurate increase in FTAC levied on franchise passenger operators.

16.125 As indicated above, we asked for Network Rail to undertake the recalibration of the charge for a number of reasons. Although the recalibration will not be implemented in CP5, we expect that the work that has been undertaken, in particular the recalibration of the capacity utilisation index disaggregated across sections of the network and by time of day and week, and an updated understanding of the relationship between this utilisation and delay, to be a major source of empirical evidence in our and the industry's work reviewing charges for CP6.

16.126 Table 16.15 shows our income forecast for the capacity charge. This income forecast is the same as the Network Rail SBP income forecast, which also used CP4 capacity charge rates.

Table 16.15: Our forecast of capacity charge income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Franchised passenger	174.4	174.8	175.1	175.5	175.9	875.7
Freight	4.5	4.6	4.9	5.1	5.3	24.4
Open access passenger	1.1	1.1	1.1	1.1	1.1	5.5
England & Wales						
Franchised passenger	168.8	169.2	169.6	169.9	170.3	847.8
Freight	4.1	4.2	4.5	4.6	4.8	22.2
Open access passenger	1.1	1.1	1.1	1.1	1.1	5.5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Scotland						
Franchised passenger	5.5	5.6	5.6	5.6	5.6	27.9
Freight	0.4	0.4	0.4	0.5	0.5	2.2
Open access passenger	0.0	0.0	0.0	0.0	0.0	0

Note: numbers may not reconcile due to rounding.

Coal spillage charge

16.127 The coal spillage charge and coal spillage reduction investment charge (CSRIC) were introduced as part of PR08. Prior to CP4, these costs were recovered through a 20% uplift on the VUC for vehicles transporting coal. The charges have been levied on freight operators carrying coal and were designed to:

(a) reflect the cost to Network Rail of spilt coal on the network; and

(b) incentivise freight operators, the coal industry and supply chain to reduce the level of coal spillage on the network.

16.128 The costs attributed to coal spillage consist of the clean-up and delay costs of point failures, clean-up to reduce the frequency of points failures and the reduced service life for track affected.

16.129 Currently spillage is not a material problem for other commodities and so there are no analogous charges. We consider it is appropriate to levy a distinct charge for coal spillage, rather than incorporate it in the VUC, so that there is greater transparency regarding this industry cost.

Charges for coal spillage in CP4

16.130 In CP4 the coal spillage charge recovered costs associated with coal spillage on the network, whereas the CSRIC revenue was used to fund investment in equipment at coal terminals to reduce such coal spillage.

16.131 For CP4, we incorporated an annual review mechanism into track access contracts for both the coal spillage charge and the CSRIC. The purpose of this review

mechanism was to incentivise operators more effectively to reduce coal spillage. This mechanism adjusted the coal spillage charge annually in proportion to the number of points failures in the preceding year where coal spillage was recorded as being a contributory factor to the failure ("relevant points failures"). This is set out in Table 16.16. Although the number of relevant points failures fell sharply in the first two years of CP4, thus reducing the charge for 2010-11 and 2011-12, in the third year a substantial increase was recorded.

Table 16.16: Coal spillage charge for each year of CP4 (2012-13 prices)

Year	Relevant points failures[285]	Coal spillage charge (p/kgtm)	Coal spillage reduction investment charge (p/kgtm)	Combined charges (p/kgtm)
2009-10	203	29.06	2.75	31.81
2010-11	154	22.05	2.75	24.80
2011-12	150	21.47	-	21.47
2012-13	231	25.27	-	25.27

16.132 The CSIRC was discontinued from April 2011 on the basis that surplus unspent funds had accrued, at that point, as a result of the charge.

Network Rail's calculation of the charges in PR13

Coal spillage charge

16.133 The coal spillage charge methodology was originally derived from a detailed assessment conducted by the independent reporter Halcrow as part of PR08. Network Rail consulted on its proposed coal spillage cost estimates in December 2012[286]. In its consultation it proposed retaining much of the PR08 methodology for estimating coal spillage costs.

16.134 Network Rail's consultation document detailed the methodology used to estimate the impact of coal spillage and the assumptions used to estimate each cost category and

[285] Based on the recorded number of relevant points failures from the previous financial year, except for 2009-10 where it was based on the number of recorded points failures occurring in 2007-08.

[286] *Network Rail's consultation on the Coal Spillage Charge and the CSRIC*, published in December 2012, can be accessed at http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784388.

subsequent coal spillage charge. The cost categories it used are shown in Table 16.17.

Table 16.17: Coal spillage cost categories and metrics

Cost category	Metrics applied to calculate costs
Preventative intervention to reduce the frequency of points failures from coal spillage	Frequency of CP4 interventions; deployment costs
Clean-up costs associated with points failures	Relevant points failures recorded in CP4
Delays due to points failures (Schedule 8 performance regime costs)	Relevant delay costs in CP4
The costs associated with the reduced service life of plain line track	Length of affected track miles taken from Halcrow recommendations and adjusted in the conclusions to take account of investment
The costs associated with the reduced service life of point ends	Number of affected point ends calculated based on affected track miles per loading and unloading site

16.135 In its December 2012 consultation, Network Rail's estimates of coal spillage costs were substantially higher than those that we determined in PR08. This was principally due to:

(a) the list of coal loading/unloading locations in PR08 appearing to have been substantially incomplete. Freight operators were consulted on the list of locations in PR013 (as they were for PR08), which had increased from 23 in PR08 to 38 in PR13. This substantially increases the estimate of coal spillage costs associated with reduced track service life; and

(b) some costs relating to preventative clean-up were omitted in PR08. The PR08 estimate did not include the costs associated with manual interventions to clean coal spillage off the network. Network Rail's PR13 estimates included these costs, and also the costs of Tube Cube[287], reflecting CP4 experience.

16.136 Freight operators and the Rail Freight Group (RFG) were concerned that the coal spillage charge on which Network Rail had consulted had increased considerably

[287] A road-rail vehicle attachment for cleaning ballast, introduced in CP4.

since PR08, despite investment undertaken during CP4 to reduce coal spillage on the network.

16.137 Operators also argued that Network Rail had provided insufficient evidence to support its cost estimates and assumptions, and that they were disappointed in the lack of progress made in understanding the costs associated with coal spillage.

16.138 We commissioned the independent reporter Arup to review Network Rail's methodology and estimates[288]. The reporter made a number of points including:

(a) confirmation, with photographic evidence, that coal spillage remained a significant issue on the network, despite the investment in CP4;

(b) a detailed review of the evidence and data available, and recommendations to improve recording of coal spillage incidents;

(c) support for Network Rail's proposal to include the new preventative clean-up categories in Network Rail's cost estimates; and

(d) recommendations regarding increasing the efficiency of the deployment of some clean-up interventions.

16.139 The reporter also investigated the impact of investment on coal spillage. During CP4, coal wagon rave cleaners had been installed at 7 out of 38 coal loading and unloading locations. The cleaners were designed to brush coal off the raves of wagons, reducing coal spillage onto the network outside the terminals. Network Rail's methodology did not directly take the impact of this investment into account, and hence the reporter considered that these costs were overstated. The reporter recommended certain changes to the methodology which had the result of reducing the estimated impact of coal spillage on track service life by 75% at locations fitted with coal wagon rave cleaners, and banded the costs associated with different point ends depending on their traffic levels.

16.140 Network Rail accepted the changes proposed by the reporter and made other changes to take account of consultation responses. It published updated coal spillage

[288] Arup's review of the Coal Spillage Charge (April 2013) can be accessed at http://www.rail-reg.gov.uk/pr13/publications/consultants-reports.php

charge estimates in its April 2013 conclusion document[289]. The net effect of these revised estimates was a reduction in the coal spillage charge from 64.97 pence per kgtm, as proposed in Network Rail's consultation document, to 52.78 pence per kgtm (2012-13 prices).

16.141 However, following the reporter review, a stakeholder argued that Network Rail's methodology for estimating track renewal costs at point ends contained substantial double counting of track costs. In May 2013 Network Rail revisited its estimates to address these concerns. Network Rail revised the affected mileages associated with each coal loading and unloading location and in some cases proposed a reduction in track mileage affected by coal spillage to reflect this double counting issue. This amendment reduced Network Rail's estimate of the coal spillage charge further to 43.12 pence per kgtm. This compares to a charge of 31.81 pence per kgtm in CP4.

16.142 Table 16.18 shows the coal spillage cost estimates of PR08, Network Rail's consultation and its conclusions. All costs are shown at end of CP5 efficiency, which, as explained in the discussion on the efficiency overlay, was the basis of the charge for CP4, and will also be for CP5.

Table 16.18: Coal spillage costs and charges

Cost category	PR08	Network Rail December 2012 consultation	Network Rail May 2013 updated conclusions
Coal spillage costs (£million a year)			
Cost of clean-up and delay minutes	0.21	0.11	0.11
Preventative intervention to reduce the frequency of points failures from coal spillage (Cost of Rail Vac & Tube Cube & Manual interventions on points failures)	0.57	1.58	1.14
Cost of point end service life reductions	1.03	1.79	0.99
Cost of Plain Line service life reductions	1.08	1.46	1.04
Total	**2.88**	**4.95**	**3.28**

[289] Network Rail's conclusions on the Coal Spillage Charge and the Coal Spillage Reduction Investment Charge, published in April 2013, can be accessed at http://www.networkrail.co.uk/CSC-and-CSRIC-conclusions.pdf.

Cost category	PR08	Network Rail December 2012 consultation	Network Rail May 2013 updated conclusions
Coal spillage charges (pence per kgtm)			
Coal spillage charge	29.06	64.97	43.12
CSRIC	2.75	-	-
Total coal spillage charges	31.81	64.97	43.12

Note: numbers may not reconcile due to rounding.

CSRIC and the annual review mechanism

16.143 In its April 2013 conclusions, Network Rail concluded that it would discontinue the CSRIC in CP5, subject to our approval. It did this on the basis that there were surplus funds available from the CP4 charges for future investment, and that cleaning equipment had already been installed at the busiest coal loading locations (e.g. Port of Immingham)[290]. The majority of respondents to Network Rail's consultation agreed with this change.

16.144 Network Rail also argued for the removal of the annual review mechanism of the coal spillage charge for CP5, on the basis that it was flawed and imposed a disproportionate administrative burden on the industry. A number of respondents disagreed with Network Rail's proposal, suggesting that it would remove an important incentive for operators to implement measures aimed at reducing coal spillage on the network.

Network Rail's SBP forecast

16.145 Network Rail's SBP was released during its consultation on the coal spillage charge, and hence did not reflect its final conclusions on the level of the charge. Its SBP income forecasts for the coal spillage charge are shown in Table 16.19.

[290] Network Rail recorded in its April 2013 conclusions on the coal spillage charge that the total fund receipts from the CSRIC were c. £295,000, and had been used to fund to that date 10 schemes at a cost of c. £250,000.

Table 16.19: Network Rail's SBP estimated coal spillage charge income for CP5

£m	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Coal spillage charge income	4.9	4.9	4.9	4.9	4.9	24.5
England & Wales						
Coal spillage charge income	3.9	3.9	3.9	3.9	3.9	19.5
Scotland						
Coal spillage charge income	1.0	1.0	1.0	1.0	1.0	5.0

Note: numbers may not reconcile due to rounding.

Our determination of coal spillage charges income

Coal spillage charge

16.146 The coal spillage charge is set to reflect the costs of spilt coal on the network. It allows Network Rail to recover these costs and incentivises the coal supply chain, including freight operators, to reduce the level of coal spillage. We continue to think it appropriate to have a separate charge for this cost item, as the associated transparency should help incentivise the coal industry to reduce these costs, reduce its impact on the network, improving efficiency and the service received by users.

16.147 Network Rail's revised May 2013 estimates of the coal spillage charge have fallen considerably since its December 2012 consultation. This reflects changes Network Rail has made following recommendations made in the independent reporter's review, and extensive input from stakeholders. We consider that the changes Network Rail has made represent a substantial improvement on its December 2012 estimates. Notably:

(a) the cost estimates should take account of the impact of investment to reduce coal spillage on asset service life, and, incorporating recommendations from the reporter, they now do so; and

(b) stakeholders have worked with Network Rail to remove incidents of double counting track costs where loading or unloading sites were located in close

proximity – an issue that was not picked up by the reporter and on which freight operators are well placed to advise.

16.148 We also think that the methodology represents an improvement on that developed for PR08, which omitted some important costs associated with respect to manual interventions and particular loading and unloading locations.

16.149 A number of stakeholders have argued strongly that the methodology is subjective and insufficiently evidence-based. This particularly relates to the estimates of the impact of coal spillage on plain line and point end service life. This methodology was established by the reporter Halcrow in PR08 and was based on a detailed assessment of the incidence of coal spillage on track in relation to loading and unloading points. In PR13 the reporter used expert judgement to recommend changes to this approach to take account of investment in rave cleaners and to reflect the fact that the investment has tended to occur on busier routes. While we recognise that more detailed empirical research may increase the accuracy of these estimates, we consider the work conducted in both PR08 and PR13 to be proportionate to the scale of the charge.

16.150 We are concerned, however, about what appears to be missed opportunities to record incidents of coal spillage, and we are asking Network Rail to improve its records of such incidents in CP5.

16.151 We conclude that we accept Network Rail's revised May 2013 methodology for estimating the coal spillage charge, and its associated estimate, subject to adjustment to reflect our determination of Network Rail's efficiency.

16.152 Table 16.20 presents our forecast of coal spillage charge income for CP5, derived from Network Rail's SBP traffic forecasts. Our estimate uses Network Rail's May 2013 coal spillage charge which we have adjusted to account for our determination of Network Rail's efficiency, as set out in the relevant section of this chapter (paragraph 16.38 onwards). This results in a coal spillage charge of around £0.39 per kgtm, compared to Network Rail's December 2013 consultation estimate of £0.65, PR08 determined coal spillage charges of £0.32, and coal spillage charge in 2012-13 (adjusted under the annual review mechanism) of £0.25.

Table 16.20: Our determination of the coal spillage charge income for CP5

£m	2014-15	2015-16	2016-17	2017-18	2018-19	Total CP5
Great Britain						
Coal spillage charge income	3.0	3.0	3.0	3.0	3.0	14.9
England & Wales						
Coal spillage charge income	2.4	2.4	2.4	2.4	2.4	11.8
Scotland						
Coal spillage charge income	0.6	0.6	0.6	0.6	0.6	3.2

Note: numbers may not reconcile due to rounding.

CSRIC and the annual review mechanism

16.153 Network Rail has argued for the removal of the annual review mechanism and the removal of the CSRIC in CP6. We have reviewed its reasoning and that of respondents to its consultation carefully.

16.154 We are concerned in general to reduce administrative burden associated with contractual mechanisms[291], and with this in mind we agree with Network Rail that the CP4 annual review mechanism imposed disproportionate administrative costs to the industry, and have concluded on that basis to remove the mechanism for CP5. We plan to revisit this decision in the next access charges review (PR18), with a view to introducing an equivalent mechanism that takes account of traffic volumes and that is less administratively burdensome if we consider investment in cost-effective mechanisms to reduce coal spillage during CP5 has been insufficient.

16.155 We agree with Network Rail's conclusion to roll any remaining CSRIC funds into CP5, and to suspend the CSIRC during CP5. As with the annual review mechanism, we will revisit this decision in the next access charges review, recognising that both mechanisms provide incentives to reduce costs of coal spillage.

[291] See our consultation "reform of access contractual arrangements" (January 2012), www.rail-reg.gov.uk/server/show/ConWebDoc.10809

Next steps

16.156 We agree with the reporter's observation that in CP4 there was little systematic recording of evidence relating to volumes of work and costs directly attributable to coal spillage. We support its recommendation that steps be put in place by Network Rail to improve recording of such evidence during CP5.

16.157 We also note the reporter's recommendation that within Network Rail, a lead route be selected to treat coal spillage with machinery intervention methods in order to establish good practice to reduce unit cost and improve efficiency.

16.158 Both the annual review mechanism and CSRIC were designed to incentivise efficient investment to reduce coal spillage. We are alert to the industry's concern that their removal may result in the perpetuation of inefficiently high levels of coal spillage. We will therefore ask Network Rail to revisit both policies as preparation for PR18. It may be possible, for example, to reduce substantially the administrative costs associated with an annual review mechanism.

16.159 We expect operators and the wider coal supply chain to continue to make cost-effective investment to reduce the amount of coal spillage on the network. Such investment has reduced the coal spillage charge for CP5 from Network Rail's original estimate.

Charges for electric current for traction

16.160 Network Rail is the single biggest user of electricity in the UK. By the end of CP5, it expects electricity consumption to have increased by around 25% on current levels. As Chapter 6 describes, Network Rail recovers the vast majority of its traction electricity costs from train operators who require electricity to run their electrified train services. These costs are recovered through the traction electricity charge.

16.161 Electric current for traction (EC4T) can take four key forms:

(a) electricity consumed by trains;

(b) electricity consumed for non-traction purposes by Network Rail and other parties (e.g. London Underground Ltd);

(c) electricity lost in transmission through the infrastructure (i.e. third rail or overhead line equipment); and

(d) electricity generated through trains' regenerative braking (to return the energy from braking to the electrification system).

Calculating the charge in CP4

16.162 Currently around 25% of EC4T consumption is charged on the basis of consumption recorded by on-train meters (OTM). Metered regenerated energy has been netted off the energy charged. Operators pay an uplift on metered consumption net of regenerated energy to recover estimated transmission losses, referred to as the distribution systems losses factor (DSLF).

16.163 Until April 2010, all electrified train services were charged on the basis of modelled (i.e. unmetered) electricity consumption rates (taking the form of kWh per train mile or gross tonne mile), and around 75% of all EC4T is still charged in this way. Modelled services with regenerative braking have been charged at a discounted rate. Under this system, modelled and actual consumption have been reconciled through a year-end wash-up referred to as the volume wash-up. Transmission losses have been charged for implicitly through the modelled rate and volume wash-up; they have not been charged for explicitly. This volume wash-up reconciliation has occurred at the level of the electricity supply tariff area (ESTA). ESTAs are defined in Schedule 7 of the track access contracts. Network Rail's consumption amounts to around 3% of all EC4T and is also subject to the volume wash-up.

16.164 Track access charges, including EC4T charges, are contractualised in Schedule 7 of the track access contract. For metered operators, this is supplemented by the EC4T metering rules[292], which apply to all services billed through OTM. Currently, most aspects of the EC4T metering rules can be changed through an industry-led change process involving consultation, majority endorsement and our approval.

16.165 There are industry processes for procuring electricity. The reconciliation of electricity prices (i.e. £ per kWh) is in the track access contract and therefore falls within scope of PR13.

[292] The EC4T metering rules are at: http://www.networkrail.co.uk/using-our-network/on-train-metering/

Network Rail's SBP forecast

16.166 In its SBP, Network Rail made a number of forecasts in order to estimate the level of future income from the traction electricity charge. Network Rail's key forecasts included:

(a) using market projections of the electricity price for 2014-15 and 2011 DECC projections for each year of CP5 thereafter;

(b) estimating future electric traffic km by using actual 2011-12 data and making growth assumptions based on forecast increased electric traffic; and

(c) estimating the future rate of electricity consumption based on actual 2011-12 data.

16.167 Given these supporting forecasts, Network Rail has projected traction electricity charges in the first year of CP5 of £229m rising to £551m in the final year of CP5. This increase is largely due to a forecast increase in electricity prices[293]. As described above, in its SBP, Network Rail used market prices for 2014-15 and then October 2011 DECC forecasts for the periods 2015-16 to 2018-19. Also, the amount of electricity used by the railway network is rising due to an increase in the size of the electrified network. Network Rail used 2011-12 traffic and electricity consumption data from its Track Access Billing System (TABS) and applied a series of adjustments before applying the forecast electricity cost per kWh to forecast traffic to produce electric traction cost forecasts by route. Table 16.21 shows Network Rail's income estimate.

Table 16.21: Network Rail's SBP estimated traction electricity charge income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Franchised passenger	229.3	446.1	459.2	495.1	551.0	2,180.7
Freight	6.2	12.7	13.9	15.1	16.2	64.1

[293] Network Rail (2013), Strategic Business Plan for England Wales and Strategic Business Plan for Scotland, pages 54 and page 55 respectively, January 2013, http://www.networkrail.co.uk/publications/strategic-business-plan-for-cp5/

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Open access passenger	3.7	7.1	7.2	7.3	7.3	32.6
England & Wales						
Franchised passenger	215.0	415.5	427.0	462.0	516.7	2,036.2
Freight	5.7	11.6	12.7	13.8	14.8	58.6
Open access passenger	3.7	7.1	7.2	7.3	7.3	32.6
Scotland						
Franchised passenger	14.4	31.6	32.2	33.0	34.3	145.5
Freight	0.5	1.1	1.2	1.3	1.4	5.5
Open access passenger	0	0	0	0	0	0

Note: numbers may not reconcile due to rounding.

16.168 There is significant uncertainty in forecast future energy prices and hence this could impact the actual income level. Crucially, if Network Rail's actual expenditure changes (due to changes in energy prices or indeed other factors) then under the charging arrangements, this will be reflected directly in the charge levels. For example, if Network Rail's electricity costs fall then charges paid by operators will reduce by a commensurate amount, and the converse will apply if electricity costs rise. Therefore, Network Rail's net revenue requirement is unaffected if actual income is ultimately different from the level that we determine. In terms of Network Rail's own use of traction electricity, it will gain or lose if electricity costs in CP5 are lower or higher than we have assumed in our determination.

Our assessment of Network Rail's SBP forecast

16.169 We are content with the general approach taken by Network Rail in calculating EC4T charges income. However, its forecast costs and charges are underpinned by DECC projections from 2011. More recent DECC data from October 2012 are available and should be used (accepting that the DECC projections have a large degree of uncertainty).

16.170 On the basis of these updated DECC projections, Table 16.22 shows our determination for traction electricity charges income. The increase from CP4 is due to higher forecast electricity prices (though lower than that used in the Network Rail SBP) and increased levels of electrified traffic mileage.

Table 16.22: Our determination of estimated traction electricity charge income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total CP5
Great Britain						
Franchised passenger	229.3	320.5	350.5	370.9	422.4	1,693.7
Freight	6.2	9.1	10.6	11.3	12.4	49.7
Open access passenger	3.7	5.1	5.5	5.5	5.6	25.3
England & Wales						
Franchised passenger	215.0	297.8	325.9	346.2	396.1	1,581.0
Freight	5.7	8.3	9.7	10.3	11.3	45.4
Open access passenger	3.7	5.1	5.5	5.5	5.6	25.3
Scotland						
Franchised passenger	14.4	22.7	24.6	24.7	26.3	112.7
Freight	0.5	0.8	0.9	1.0	1.1	4.3
Open access passenger	0	0	0	0	0	0

Note: numbers may not reconcile due to rounding.

EC4T charges for CP5

Network Rail's conclusions and our determination

16.171 As part of its PR13 work on setting charges, in September 2012, Network Rail published a consultation on traction electricity & electrification asset usage charges (which covered AC losses) and in November 2012 it published another consultation which covered DC losses[294].

[294] Network Rail (2012). Consultation on charging for losses and regenerative braking for metered operators on the DC network, November 2012, http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784066

16.172 We welcome the level of engagement shown by the industry. We have noted the responses provided, and fully considered these industry views. We set out Network Rail's main conclusions from February 2013[295], which concluded on both its consultations, and our determination in Table 16.23[296].

16.173 Network Rail also concluded on a number of items which we wished to consult on further as part of our April 2013 consultation on EC4T, in particular in relation to the DSLF (the transmission losses uplift). These policies are not shown in Table 16.23 and instead we discuss these in the next section.

Table 16.23: Network Rail's EC4T conclusions and our determination

Network Rail's conclusions	Our determination
To retain current modelled consumption rates for all operators.	We confirm that modelled consumption rates will not change for CP5.
To make metered billing mandatory for all new electric rolling stock.	This is not a decision for PR13 per se and we will consider its merits and implementation issues further.
To discontinue the Transitional Risk Sharing Mechanism (TRSM)[297].	We confirm this. The mechanism was designed to apply during CP4 only.
To retain the CP4 regenerative braking discounts for modelled operators. To introduce provisions to the EC4T metering rules to allow Network Rail to verify that regenerative braking is being used correctly	We support verification that regenerative braking is being used correctly. Our understanding is that the evidence (from metered services) regarding the rates for regenerative braking is contingent on the assumption that regenerative braking has no associated losses. In the absence of better evidence, we confirm the discounts that Network Rail has proposed, but require that Network Rail carry out more work understanding losses associated with regenerative braking, for implementation as part of PR18.
That freight operators are charged on the basis of the actual electricity costs rather than an index.	We confirm this.

[295] *Traction Electricity and Electrification Asset Usage Charges in CP5 – Conclusions of Network Rail's Consultation*, Network Rail, February 2013, available at http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784907

[296] The electrification asset usage charge is covered in the relevant section of this chapter.

[297] This temporary mechanism was introduced in CP4 to offer protection to modelled operators who were concerned about the impact of OTM on their modelled bills.

Network Rail's conclusions	Our determination
Change the cost wash-up formula to better reflect tariff structure including the EC4T delivery charge.	We support this, and recognise it as an important complementary measure to freight operators' move to market prices, given that they should benefit from lower off peak prices.
Moving the volume and cost year-end wash-ups and definitions of ESTAs from Schedule 7 to the EC4T metering rules[298], which would be renamed the 'Traction Electricity Rules'.	We confirm this. The rules will apply to all operators using EC4T.

16.174 Network Rail is currently consulting on charges for charter services, including EC4T charges. These are discussed in the charter section of this chapter.

Our consultation and conclusions on EC4T charges for CP5

16.175 We issued a consultation in April 2013[299]. We consulted on the charges for transmission losses, which Network Rail had previously consulted on. We also consulted on changes to the volume wash-up. We explained that we had concluded not to require an uplift to be levied on modelled services to incentivise metering.

16.176 We are grateful for the level of engagement shown by the industry. We have noted the responses provided and considered these in our conclusions[300] . We set out our conclusions, in the same order as the questions we asked in our consultation, in this section.

Process for setting the DSLF (question 1)

16.177 We consulted on whether to amend the traction electricity rules so that any decision to amend the AC and DC DSLF for metered operators would be restricted to ORR, and take place as part of an access charges review. We received a wide variety of responses to this point. There was some support, for example from ATOC, for retaining the current or similar change provision (so that in principle the DSLF could be changed through a majority-endorsed proposal). While several respondents

[298] Further information on the metering rules can be found here http://www.networkrail.co.uk/using-our-network/on-train-metering/

[299] ORR (2013), Consultation on electricity for traction charges for control period 5 (CP5), April 2013, http://www.rail-reg.gov.uk/pr13/PDF/ec4t-consultation-apr-2013.pdf

[300] We will publish the responses to our consultation shortly after the publication of this draft determination at the same web link as our consultation.

supported retaining the same DSLF for the entire control period, others argued strongly for one or more reopeners in various forms.

16.178 The calculation of the DSLF is highly complex and requires an impartial examination of the evidence, and we conclude that this is best achieved by restricting any such amendments to those proposed by ORR. We will do this in accordance with our existing right to modify the rules (set out in the rules at paragraph 11.21 and following). We consider that restricting the right to modify the DSLF in this way reduces uncertainty (by removing the possibility of a succession of operator- or Network Rail-led proposals to change DSLF in individual or all ESTAs) thereby promoting metered billing. This amendment to the rules adds greater certainty versus the CP4 position, while retaining some flexibility, thereby addressing some of the concerns that stakeholders raised.

Our conclusions on the DSLF (question 2)

16.179 We confirm that we will set the DSLF as part of PR13 by ESTA (differentiating between AC and DC). Network Rail argued for a single AC DSLF network wide, on the basis that estimates by ESTA were not sufficiently robust for billing purposes. Our understanding is the differences in estimates by ESTA are based on sound engineering rationale (rather than measurement error), and therefore disaggregated rates should inherently be more cost-reflective than a single aggregate rate. We do not think that this introduces billing complexity over and above that inherent in electricity prices.

16.180 A modified change process will apply to the definition of ESTAs, so that a proposal is subject to vote by Network Rail and all operators (not just those with metered billing, as is the case for other aspects of the rules). Our presumption will be that major new pieces of electrified infrastructure will be established as one or more new ESTAs for CP5 (with ESTA definitions revisited as part of PR18), unless there are sound engineering or practical reasons to conclude otherwise. We are asking Network Rail to improve its evidence on transmission losses associated with regenerative braking, to inform the setting of the DSLF for any new ESTA created in CP5 and for PR18.

16.181 We confirm that we will approve changes to the traction electricity rules so that the DSLF is applied with respect to the gross metered consumption, rather than metered consumption net of metered regenerative braking, as it is currently. Our original proposal was widely endorsed in consultation responses, though both Network Rail

and ATOC highlighted that it would require some changes to the billing system for metered services. (We do not see that it requires any changes to billing for modelled services.) This change in approach better reflects the interaction between regenerated energy and electrical losses.

16.182 We conclude that we will set the DSLF by ESTA for CP5 on the basis of Network Rail's median estimates in its February 2013 conclusions. These are set out in Table 16.24. The definition of ESTAs to which this table applies was set out in annex B of our April 2013 consultation.

Table 16.24: ORR approved DSLF, for application from 1 April 2013

ESTA letters	ORR confirmed DSLF (to be applied on gross metered consumption)
D, F	4.89%
A,B,C,E,I,J,N,S	4.23%
G,H,Q,V	3.86%
O,P,R	3.21%
T	3.41%
M	11.56%
U	17.01%

Note: the ESTAs are as defined in annex B of our April 2013 consultation on electricity for traction charges.

Exposing Network Rail to the volume wash-up (questions 3, 4 and 5)

16.183 We confirm that metered services will be exempt from the volume wash-up even in ESTAs where more than 90% of consumption is metered. There was broad support for this proposal. We consider that this reform may support a business case for OTM. By allocating Network Rail a share of the volume wash-up, the risk to modelled operators of the DSLF being set too low is mitigated.

16.184 We confirm the formulation for Network Rail to share the volume wash-up in each ESTA on which we consulted. In this, Network Rail's share of the wash-up, over and above that associated with its own use, reflects the proportion of costs for which it has control through its management of transmission losses. We illustrated how this might work with some examples in our April 2013 consultation, and we will specify how we propose to contractualise this in our 12 July 2013 consultation on implementation.

16.185 We take the proportion of costs for which Network Rail has control to be equal to the total estimated level of losses in each ESTA (which is the total consumption, gross of losses x DSLF / {1+DSLF}). This is shown in Table 16.25. This formulation, as a function of the DSLF, would apply for the whole of CP5. This is a pragmatic proposal, reflecting the difficulty in calibrating the incentives in the context where most of the electricity consumed is not metered.

Table 16.25: Percentage of gross electricity imputed as being within the control of Network Rail for the purpose of allocating the volume wash-up in CP5

ESTA letters	Network Rail share
D, F	4.66%
A,B,C,E,I,J,N,S	4.06%
G,H,Q,V	3.72%
O,P,R	3.11%
T	3.30%
M	10.36%
U	14.54%

Note: the ESTAs are as defined in annex B of our April 2013 consultation on electricity for traction charges.

16.186 This reform reflects our view on the proportion of costs for which Network Rail has control through its management of electrical losses. This proposal had widespread support from operators. We understand Network Rail's concerns on this reform, particularly around the reduced incentives properties with respect to OTM. However, we consider that these risks are outweighed by the benefits such as increased focus on managing electricity consumption (including that of third parties) and transmission losses, greater certainty for metered operators and mitigated risk for modelled operators.

Partial fleet metering (PFM) (question 6)

16.187 The industry has investigated some of the implications of metering only a sample of the fleet with the aim of reducing the costs associated with OTM. Under this system, the consumption from the services that were not metered would be billed by an

equivalent amount to those metered. We refer to this proposed system of billing as partial fleet metering (PFM).

16.188 Network Rail highlighted the fact that no practical demonstration or testing of PFM has been carried out to date. We think that this is a valid point. The industry needs to be confident that there are genuine cost savings to be made in such an approach, taking into account the costs associated with management of data and Network Rail's billing, before significant investment to enable PFM is committed.

16.189 We think that it is appropriate that the industry, rather than we, devise the contractual framework for PFM, just as it did for OTM, subject to our approval. At the same time, it makes sense for us to have a greater role in specifying how the risk will be shared between OTM, PFM, modelled services and Network Rail through the volume wash-up. This is because the calculation of the DSLF is highly complex, and requires an impartial examination of evidence.

16.190 In principle we think that:

(a) PFM at a level that produces an estimate to a high level of accuracy should have substantially reduced exposure to the volume wash-up; while at the same time

(b) The incentives to meter all services (for example for new rolling stock) should not be undermined, and therefore full metering should have less exposure to the volume wash-up than PFM.

16.191 In our consultation we set out a particular formulation that would meet these criteria and said that we would be open to considering other formulations. ATOC in its response stated that it endorsed the conclusion from analysis of metered data undertaken by Birmingham University that 30% fleet metering should be seen as the level necessary to achieve a reasonable degree of accuracy for energy usage. It said that incentives should be built around achieving this level of PFM.

16.192 We agree that it makes sense to consider incentives with respect to 30% fleet metering (though, perhaps because of differences in the heterogeneity and scale of services, that may not be an appropriate level of fleet metering in all cases). Our proposed formulation shows that at 30% metering, the share of the wash-up would be 24% of that which it would be for equivalent wholly modelled services (i.e. a service with no meters). We confirm that we think that this achieves the right balance of

reduced risk exposure for 30% fleet metering. We are not concluding on a particular formulation as part of PR13.

Network Rail's own consumption of EC4T (question 7)

16.193 There was widespread support for the proposal that Network Rail's metered consumption should be treated on an equivalent basis to other metered consumption subject to certain conditions, for example standards of accuracy, third party audit, and prescribed treatment of new sources of consumption.

16.194 Network Rail's consumption and that of third parties is not currently reflected in the track access contract, though in practice such modelled consumption is treated on a consistent basis to that of modelled consumption by operators in Network Rail's allocation of the volume wash-up. We will contractualise this, so it is reflected in the traction electricity rules in CP5.

16.195 Network Rail's accountability with respect to its metered consumption is not yet comparable to that of services with OTM billing, even recognising that its consumption is on a smaller scale. We will therefore on an interim basis change the contractual formulation so that all of Network Rail's consumption is included in the volume wash-up (comparable to modelled services). When provisions have been added to the traction electricity rules that put Network Rail's metered consumption on an equivalent footing to that of metered services, we will approve its exemption from the volume wash-up. We expect that, under Network Rail's leadership, this can be achieved before April 2015 (in time for the 2014-15 volume reconciliation), so that in practice Network Rail's metered consumption is exempted from the volume wash-up for the whole of CP5.

Electrification asset usage charge

16.196 The electrification asset usage charge (EAUC) recovers the maintenance and renewal costs of electrification assets that vary with traffic. It is a separate charge to that of the VUC because it is only levied on services using electricity for traction.

16.197 Network Rail's electrification assets comprise the AC and DC overhead lines and the DC conductor rail (third rail) systems supported by additional distribution infrastructure. These assets are used by trains to draw traction electricity.

EAUC in CP4

16.198 In CP4 there have been four EAUCs: DC and AC for each of passenger and freight. The charge has been levied per vehicle mile for passenger traffic and per kgtm for freight traffic, reflecting the fact that there is a stronger relationship between electrification costs and vehicle mileage rather than with the amount of traction electricity used.

Calculating the charge in CP5

16.199 Network Rail issued a consultation on its proposals for the EAUC in September 2012[301], and then concluded, including in relation to price lists, in February 2013[302]. These price lists were consistent with those assumed in its SBP. The SBP and consultation explained Network Rail's methodology for calculating the charge and the former provided data on total EAUC income in CP5.

16.200 Network Rail's SBP outlined that the EAUC income forecast was based on:

(a) EAUC cost estimates for AC and DC electrified assets; and

(b) forecast electrified vehicle kilometres for passenger and kgtm for freight by AC and DC.

16.201 The SBP further explained that variable maintenance and renewals costs associated with electrification assets were forecast by Network Rail engineering teams. Network Rail then calculated the electrification asset usage rates by dividing the cost estimates by forecast electrified traffic for the base year 2014-15.These rates were multiplied by the corresponding electrified traffic forecasts for each year of CP5.

16.202 The costs associated with maintenance and renewals of the AC and DC electrification assets differed reflecting the different causes of cost causation.

16.203 In its SBP, Network Rail forecast higher EAUCs in CP5 compared to CP4 because of:

(a) a longer run approach to estimating costs which meant basing cost estimates on a 35 year average rather than a five year average, consistent with the methodology used for the VUC. This approach smoothed out renewal costs that

[301] Network Rail (2012), Traction electricity and electrification asset usage charges full consultation, September 2012, http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064783482

[302] Network Rail (2013), Traction Electricity and Electrification Asset Usage Charges in CP5 – Conclusions of Network Rail's Consultation, February 2013, http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784907

would otherwise potentially fluctuate markedly due to the age and condition of the electrification equipment;

(b) updating variability assumptions, including a much more granular approach to assessing costs, which resulted in a marked increase in the estimated maintenance and renewal costs that vary with traffic; and

(c) increasing unit cost rates due to, for example, higher metal prices.

16.204 Table 16.26 shows the CP5 rates used in the SBP and the CP4 actual rates.

Table 16.26: EAUC in CP4 and Network Rail SBP

	Passenger		Freight	
(2012-13 prices)	DC (third rail) Pence per electrified vehicle mile	AC (OLE) Pence per electrified vehicle mile	DC (third rail) £ per kgtm	AC (OLE) £ per kgtm
CP4	0.47	1.124	0.0628	0.1178
CP5	2.08	1.96	0.2300	0.3662

Network Rail's SBP forecast

16.205 Network Rail's EAUC income forecast from its SBP is presented in Table 16.27.

Table 16.27: Network Rail's SBP estimated EAUC income

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Franchised passenger	20.2	20.4	20.6	21.1	22.7	105
Freight	1.0	1.1	1.2	1.3	1.4	6
England & Wales						
Franchised passenger	18.9	19.1	19.3	19.5	21.0	97.8
Freight	0.9	1.0	1.1	1.2	1.2	5.4
Scotland						
Franchised passenger	1.3	1.3	1.4	1.6	1.7	7.3
Freight	0.1	0.1	0.1	0.1	0.1	0.5

Note: numbers may not reconcile due to rounding.

Our assessment of Network Rail's SBP forecast

16.206 We reviewed and challenged the basis of Network Rail's SBP cost estimates and asked Network Rail to make changes to its methodology following significant concerns we had on the approach it had taken. In particular:

(a) we identified a number of inconsistencies, both in the total expenditure and in the way the renewals expenditure was allocated, between the EAUC model and other models Network Rail used to support the SBP;

(b) we had concerns about how total AC maintenance costs were calculated, particularly on the approach taken to OLE maintenance and changes in utilisation;

(c) Network Rail calculated the costs over 35 years, as an average. In its consultation it divided these costs by forecast 2014-15 traffic to derive the EAUC. In its conclusions it instead divided by forecast CP5 average traffic to derive the EAUC. However, as the cost estimates were 35 year average, we were concerned by this inconsistency. We asked Network Rail to calculate the EAUC using average forecast traffic over 35 years instead; and

(d) we noted additional computational errors related to, for example, the way in which Network Rail converted miles to km.

16.207 We also appointed the independent reporter AMCL to review Network Rail's methodology[303]. The reporter made a number of technical recommendations following its review. We asked Network Rail to update its work to take account of our concerns and the reporter's recommendations.

16.208 Network Rail submitted new rates and projected levels of CP5 income to us in May 2013 to take account of our concerns and the reporter's findings. Table 16.28 shows these new rates compared to the CP4 charge and the charge on which Network Rail consulted in comparison to the CP4 position and the position for CP5 as described in Network Rail's SBP.

[303] *Asset Management Consulting Limited (AMCL) (2013), Assessment of EAU charge proposals: PR13 review*, June 2013, available at http://www.rail-reg.gov.uk/pr13/publications/consultants-reports.php.

Table 16.28: Comparison of EAUC in CP4 and Network Rail's calculation for CP5

	Passenger		Freight	
(2012-13 prices)	DC (third rail) Pence per electrified vehicle mile	AC (OLE) Pence per electrified vehicle mile	DC (third rail) £ per kgtm	AC (OLE) £ per kgtm
CP4	0.47	1.24	0.0628	0.1178
CP5 Network Rail SBP	2.08	1.96	0.2300	0.3662
CP5 Network Rail May 2013 update	0.77	1.74	0.0534	0.2664

16.209 Table 16.29 shows Network Rail's forecast income from the EAUC on the basis of its May 2013 update.

Table 16.29: Network Rail's estimated EAUC income for CP5, May 2013 update

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Franchised passenger	13.3	13.5	13.7	14.1	15.3	70.0
Freight	0.7	0.8	0.8	0.9	1.0	4.2
England & Wales						
Franchised passenger	12.2	12.4	12.5	12.7	13.8	63.6
Freight	0.7	0.7	0.8	0.8	0.9	3.9
Scotland						
Franchised passenger	1.1	1.2	1.2	1.4	1.5	6.5
Freight	0.1	0.1	0.1	0.1	0.1	0.5

Note: numbers may not reconcile due to rounding.

16.210 Given the significant changes in methodology between Network Rail's SBP and its revised submission to us in May 2013, and the implications this had for the unit rate and expected level of CP5 income, we asked Network Rail to update its February

2013 conclusions on the EAUC. Consistent with this, at the end of May 2013, Network Rail issued an addendum to its February conclusions[304].

16.211 Following Network Rail's re-submission, we are satisfied with the approach Network Rail has taken now that it has taken into account the reporter's recommendations and our concerns. Table 16.30 shows our determination of the EAUC rate for CP5, including an adjustment for our determination of efficiency, as set out in the relevant section of this chapter (paragraph 16.38 onwards).

Table 16.30: Our determination of EAUC for CP5

	Passenger		Freight	
(2012-13 prices)	DC (third rail) Pence per electrified vehicle mile	AC (OLE) Pence per electrified vehicle mile	DC (third rail) £ per kgtm	AC (OLE) £ per kgtm
CP5	0.72	1.62	0.0498	0.2482

16.212 Table 16.31 shows our determination of EAUC income for CP5.

Table 16.31: Our determination of forecast EAUC income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Franchised passenger	12.4	12.6	12.8	13.2	14.3	65.3
Freight	0.7	0.7	0.8	0.8	0.9	3.9
England & Wales						
Franchised passenger	11.4	11.5	11.6	11.9	12.9	59.3
Freight	0.6	0.7	0.7	0.8	0.8	3.6
Scotland						

[304] We understand that Network Rail will publish this shortly at http://www.networkrail.co.uk/publications/delivery-plans/control-period-5/periodic-review-2013/pr13-closed-consultations/.

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Franchised passenger	1.0	1.1	1.1	1.3	1.4	6.0
Freight	0.1	0.1	0.1	0.1	0.1	0.3

Note: numbers may not reconcile due to rounding.

Freight only line charge

16.213 The freight only line (FOL) charge was introduced as part of PR08. It was calculated to recover the fixed costs of FOL for the commodities on which it is levied[305]. In legal terms, it represents a mark-up on charges for costs directly incurred on those market segments which we determine to be subject to the charge. Coal for the electricity supply industry and spent nuclear fuel are the two commodities that have paid a FOL charge in CP4.

16.214 In PR13 we have consulted on another mark-up, the freight specific charge (FSC) which we describe in the next section. We consulted on the basis that the FSC would recover all costs that Network Rail could avoid if freight services did not use its infrastructure, which we referred to as freight avoidable costs. In principle the FSC and FOL charge could be treated as a single charge. For reasons of transparency, during the phasing in of the FSC, we agree with Network Rail's conclusion that they should be kept as separate charges for CP5, but we will revisit this at PR18.

16.215 In CP4 the FOL charge has been levied as a flat rate, by commodity, per kgtm on all ESI coal and spent nuclear traffic irrespective of its location on Network Rail's infrastructure: even though the costs relate to FOL only, the charge has applied nationwide[306]. The charge will continue to apply as a flat rate irrespective of the location in CP5.

[305] Freight only lines are defined as lines that would close if freight services ceased to operate. It includes segments of branch lines used only by freight traffic and terminal lines.

[306] With the exception of the year-end reconciliation of EC4T costs and volumes, all charges in CP4 were levied nationwide; principally the rationale for this was to mitigate the complexity of billing.

Network Rail's consultation on freight caps

16.216 As part of its November 2011 consultation on freight caps, Network Rail presented its initial estimates of FOL costs[307], to be used as the basis for calculating the FOL charge in CP5. Network Rail estimated the total cost to be recovered for ESI coal and spent nuclear fuel FOL using broadly the same methodology as that which it developed in PR08. Network Rail based its FOL costs estimates on these two commodities because at the time of its November 2011 consultation these were the only commodities we had assessed as being subject to a FOL charge. To estimate FOL costs, Network Rail:

(a) prepared a list of FOLs;

(b) estimated the total cost of these lines using Network Rail's infrastructure cost model (ICM);

(c) apportioned the costs to each commodity in proportion to the gross tonne miles transported on the FOL by that commodity; and

(d) deducted variable usage costs associated with traffic on the FOL, on the basis that these would be recovered through the VUC.

16.217 We mandated the reporter Arup to review the calculations that Network Rail presented in its freight caps consultation, including that of the FOLs. Arup's report is published on our website[308]. Network Rail took the findings into account in its March 2012 conclusions.

16.218 Network Rail's March 2012 conclusions on FOL costs were presented in 2011-12 prices and end of CP4 efficiency, whereas the numbers in this chapter are presented in 2012-13 prices and end of CP5 efficiency, so are not directly comparable.

Estimating freight avoidable costs

16.219 In May 2012 we consulted on introducing a new charge that we called a freight specific charge (as well as consulting on setting a cap on the average freight VUC). This charge would recover what we referred to as freight avoidable costs that were not recovered from other charges. As part of this work, we reviewed Network Rail's

[307] *Freight caps – consultation on variable use charge (VUC) and freight only line charge initial cost estimates*, Network Rail, November 2011

[308] Arup (30 March 2012), AO/027: Review of Analysis in Network Rail's 'Freight Cap' Consultation Report, http://www.rail-reg.gov.uk/upload/pdf/review-analysis-nrs-freight-cap-consultation.pdf

estimates for FOL costs, taking account of the independent reporter's review, and said that we were broadly content with Network Rail's approach and estimates of FOL costs.

16.220 As part of the work on the freight specific charge, Network Rail commissioned consultants L.E.K to estimate freight avoidable costs. L.E.K's report was published by Network Rail in October 2012, and included refined estimates of costs for FOLs[309]. Network Rail used L.E.K's refined estimates in its forecasts of income from the FOL charge in its SBP.

Network Rail's SBP forecast

16.221 Network Rail's SBP income forecasts for the FOL charge were based on the assumption that it would be levied on ESI coal and spent nuclear fuel traffic only. These forecasts are presented in Table 16.32.

Table 16.32: Network Rail's SBP estimated FOL charge income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain	5.9	5.9	5.9	6.0	6.0	29.7
England and Wales	4.8	4.8	4.8	4.8	4.8	24.0
Scotland	1.1	1.1	1.1	1.1	1.1	5.50

Note: numbers may not reconcile due to rounding.

Calculating and phasing in changes to the FOL charge

16.222 In January 2013 we concluded on our consultation on the freight specific charge and a cap on the VUC. As part of this, we concluded on a cap on a freight specific charge. On the basis of a detailed assessment of the markets for different commodities, we concluded that the mark-up would apply to ESI coal, spent nuclear fuel and iron ore. We also announced that we would consult on an equivalent charge for biomass, and went on to do so in February 2013.

[309] L.E.K.'s report on freight avoidable cost, October 2012, can be accessed at http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784085.

16.223 Network Rail issued a consultation in February 2013[310] with the purpose of updating its charging calculations to take account of our January 2013 conclusions.

16.224 The cost estimates took account of L.E.K's refinements (which had already been used in the SBP income forecasts), but Network Rail also stated its intention to update the cost estimates for some further changes that followed the SBP, and had commissioned L.E.K to undertake an update of its freight avoidable cost estimates.

16.225 Network Rail presented the FOL charges, as opposed to estimates of total FOL costs, for the first time. Network Rail calculated these by dividing its cost estimates by its forecast of average CP5 traffic levels for the relevant traffic.

16.226 Network Rail highlighted an error in the PR08 calculation of the FOL charge for spent nuclear fuel, resulting from incorrect assumptions it had made regarding traffic levels in CP4. Correcting this error, Network Rail calculated that the CP5 FOL charge should be around seven to eight times higher than the CP4 charge of £5.34/kgtm.

16.227 To give the nuclear industry time to adjust to such a significant increase, Network Rail proposed phasing in the increase in the charge for spent nuclear fuel in line with its proposal for phasing in the freight specific charge, no increase for the first two years of CP5, and then with the charge rate increasing to 20%, 60% and 100% of the full charge rate over the last three years of CP5.

16.228 In its consultation, Network Rail proposed to phase in the FOL charge for iron ore and potentially biomass over the same time frame and using the same profile as for the freight specific charge, i.e. the charge would be introduced in April 2016 for the last three years of CP5 (2016-17 to 2018-19), with the charge increasing to 20% of the full charge rate, to 60% and 100% respectively.

16.229 Network Rail published its conclusions to its February consultation on 23 April 2013[311]. It concluded on FOL charges for ESI coal, spent nuclear fuel, iron ore and also biomass. Table 16.33 below sets out Network Rail's calculation of the charge for each of these commodities. Table 16.34 shows Network Rail's forecast of FOL revenue for each of these commodities, using the SBP freight traffic forecasts.

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[310] *Network Rail's freight specific charge consultation*, published February 2013, can be accessed at http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784848.

[311] http://www.networkrail.co.uk/Conclusions-on-the-phasing-of-freight-specific-charge.pdf

Table 16.33: Network Rail April 2013 conclusions on FOL charge (£ per kgtm)

Commodity	2014-15	2015-16	2016-17	2017-18	2018-19
ESI Coal	£0.5507	£0.5507	£0.5507	£0.5507	£0.5507
Spent nuclear fuel	£5.3436	£5.3436	£6.0446	£18.1337	£30.2228
Iron ore	£0.0	£0.00	£0.1665	£0.4996	£0.8327
Biomass	£0.00	£0.00	£0.061	£0.1817	£0.3029

Table 16.34: Network Rail April 2013 forecast income from FOL charge (£ million)

Commodity	2014-15	2015-16	2016-17	2017-18	2018-19	CP5 total
ESI coal	£3.89	£3.89	£3.89	£3.89	£3.89	£19.45
Spent nuclear fuel	£0.14	£0.14	£0.16	£0.49	£0.82	£1.75
Iron ore	£0.00	£0.00	£0.03	£0.08	£0.13	£0.24
Biomass	£0.00	£0.00	£0.12	£0.35	£0.58	£1.05

Note: numbers may not reconcile due to rounding.

Our assessment of Network Rail's forecast

16.230 Network Rail's methodology for calculating FOL costs was established in PR08, and subject to independent reporter review in 2012. We are content with its approach and use its revised April 2013 estimates as the basis of our determination of forecast income for this charge.

16.231 Network Rail has converted these costs into a charge by dividing by forecast relevant traffic for CP5. We have been concerned that the costs and traffic levels might be calculated on an inconsistent basis, leading to a distortion in the charge, but have now satisfied ourselves that this is not a material consideration. In particular, Network Rail's cost estimates were based on FOLs for a particular point in time (start of CP5), whereas its traffic is CP5 average, but as the forecast for CP5 traffic has been flat, this is not material.

16.232 It is regrettable that the correct traffic levels for spent nuclear fuel were not applied in PR08 to calculate the appropriate charge, resulting in a substantial error in the scale

of the CP4 charge. We think it is appropriate to correct the error now, in order to ensure that the charges send the correct signals to Network Rail and to those hauling spent nuclear fuel. But the scale of the increase means that, in order to allow time for users to adapt to it, we consider Network Rail's approach to phasing in the large increase in charge which results from correcting this error to be appropriate.

16.233 We have decided not to levy a FOL charge on biomass in CP5. The commodities to which the FOL charge applies are consistent with those to which the freight specific charge applies, and, as explained in paragraph 16.247, we have decided not to levy a freight specific charge for biomass in CP5. As part of our wider work in the beginning of CP5 to improve our understanding of costs and how they should be reflected in the structure of charges, we will ensure we involve biomass stakeholders.

16.234 We propose to work further with the industry, and with customers for biomass haulage, in CP5 in order to understand better the costs they generate on the network and how this should be reflected in charges in CP6.

16.235 Table 16.35 shows our determination of forecast FOL charge income for CP5, including adjustment for our determination of efficiency, as set out in the relevant section of this chapter (paragraph 16.38 onwards). In the case of spent nuclear fuel, we have not applied the efficiency overlay to the rollover of the CP4 charge. Table 16.36 shows our determination of the estimated FOL charges for CP5.

Table 16.35: Our determination of forecast FOL charges income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Freight	3.7	3.7	3.8	4.1	4.4	19.7
England & Wales						
Freight	2.9	2.9	3.0	3.3	3.6	15.7
Scotland						
Freight	0.8	0.8	0.8	0.8	0.8	4.0

Note: numbers may not reconcile due to rounding.

Table 16.36: ORR estimation of FOL charge for CP5 (£ per kgtm)

Commodity	2014-15	2015-16	2016-17	2017-18	2018-19
ESI Coal	0.50	0.50	0.50	0.50	0.50
Spent nuclear fuel	5.34	5.34	9.77	18.64	27.50
Iron ore	0.00	0.00	0.15	0.45	0.76

Freight specific charge

Background

16.236 We are keen to improve the extent to which the charges that Network Rail's customers pay reflect the costs they impose on the network. More cost reflective prices help to drive efficiencies and send better signals to Network Rail and its customers for the efficient provision and use of access to the network, which is itself a scarce resource. More cost reflective charges also improve transparency – making it clearer who pays for what and what they receive in return. In our view, the new freight specific charge or FSC which we concluded on in January[312] is an important step in improving value for money.

16.237 Some of the public financial support for the rail industry benefits rail freight. All train operators pay a variable usage charge for each vehicle they run on the network. But only franchised passenger train operators pay FTAC, which contributes to infrastructure costs beyond the costs generated simply by running additional vehicles. In 2011-12 passenger train operators paid £887m to Network Rail in fixed charge. The comparable charge that freight operators pay (the FOL charge) amounted to around £4m in 2011-12.

16.238 There are good reasons to subsidise rail freight. This is because there are wider economic and social benefits of moving freight by rail rather than road. Without rail freight, there would have been an additional 6.7 million road journeys in 2007-8. Switching from road to rail reduces CO_2 emissions by 70% per tonne moved and generates benefits in terms of reduced road congestion equivalent to 28 pence per HGV mile avoided. This is why the UK and Scottish governments have consistently

[312] *Our conclusion on the variable usage charge and freight specific charge*, published January 2013, can be accessed at http://www.rail-reg.gov.uk/pr13/PDF/freight-conclusions-jan-2013.pdf

supported rail freight, and have funded substantial investments to improve rail freight infrastructure - for example gauge enhancements on Felixstowe to Nuneaton and Southampton to West Midlands to allow large containers to be carried by intermodal traffic and the Grangemouth branch improvement.

16.239 But the wider economic and social benefits that underlie the subsidy to rail freight are generated principally when freight that would otherwise have travelled by road travels by rail. To date, rail freight has benefitted from subsidy, even where, as is the case for ESI coal, spent nuclear fuel and iron ore, it cannot easily or economically switch to road. By introducing a freight specific charge for these commodities, we will increase the extent to which they contribute to the costs that freight imposes on the rail network. And in doing so, we will reduce the overall size of the subsidy that Network Rail receives (through grant directly from government in lieu of franchised passenger operators FTAC) and the FTAC paid by franchised passenger train operators.

Our January 2013 decisions on the FSC

16.240 Following extensive consultation with our stakeholders, we concluded, in January, that we would introduce a new charge, the FSC, in CP5. The purpose of the charge is to recover infrastructure costs caused by freight operating on the network that are not currently recovered through other freight charges. The introduction of this charge means that rail freight will pay a greater contribution to the costs that it imposes on the network.

16.241 The FSC is to be levied as a mark-up on the variable usage charge and recover freight avoidable costs. The Access and Management Regulations establish the legal framework for levying a mark-up. In addition to this legislation, we also must consider any proposed mark-up against our statutory duties which are primarily set out in section 4 of the Railways Act 1993. We set out the legal test that we applied in reaching our decision on the freight specific charge in our January decisions document.

16.242 The FSC will improve the extent to which the charges that freight operators pay reflect the costs they impose on the network. To be consistent with the Access and Management Regulations the charge is recovered from the commodity markets assessed by us to be able to bear a mark-up on the variable usage charge. We undertook extensive market analysis to inform our decision making process.

16.243 In January we concluded that the charge would apply as follows in Table 16.37.

Table 16.37: Application of the FSC to commodities

Commodity	Conclusion
Electricity supply industry coal	Yes
Other coal	No
Spent nuclear fuel	Yes
Iron ore	Yes
Biomass	Make decision as part of PR13, and consult on levying the charge on biomass.
Other commodities	No

16.244 Our January conclusions document did not set freight specific charges as such rather it set a cap on the FSC i.e. the maximum level of the charge to be levied in CP5, by commodity. We also concluded that the unit of the charge would be a charge per thousand gross tonne mile (per kgtm), reflecting the fact that the two principal drivers of freight avoidable costs are weight and distance travelled. The caps are shown in Table 16.38.

Table 16.38: FSC cap by commodity

Commodity	FSC cap (per kgtm)
ESI Coal	£4.04
Spent nuclear fuel	£11.64
Iron Ore	£2.96

16.245 We indicated in January that further work would be required in order to set charges and asked Network Rail to take this work forward.

16.246 In order to address concerns raised during our extensive stakeholder engagement, in particular about the ability of some users to cope with the imposition of this new charge, we also determined that the FSC would be phased in over the course of CP5 to allow freight businesses time to adapt.

Extending the FSC to biomass

16.247 As part of the market assessment undertaken ahead of our January conclusions document we began the process of considering whether or not the charge should apply to trains carrying biomass. We had previously said we would not levy a charge on biomass but would revisit the policy to coincide with DECC's recalculation of subsidy from 2017. We changed this stance in our January decision document because respondents to the May consultation had explained that investments made now would be subject to the existing subsidy regime, not a 2017 revision, and they wanted certainty about the charging regime to inform imminent investment decisions. We subsequently consulted on a proposal to introduce the FSC for biomass, setting out what this could be.

16.248 While some stakeholders recognised the potential for cross subsidy if biomass traffic were excluded from the charge, there was strong opposition to the charge. Issues raised included concern about the emerging nature of the market, the consequential lack of robust traffic forecasts and the potential for the charge to adversely impact the appetite to invest in the sector.

16.249 One stakeholder told us that, while it understood the need for the access charges it paid to be cost reflective, it was concerned that it had not been much involved in the process by which the cost estimates had been arrived at. The same stakeholder was also concerned that contract for difference strike prices, which in principle could have reflected the FSC, had now been fixed by DECC until 2019, so that the new charge could not be passed on, with the potential to affect future investment decisions. They noted that a charge introduced in PR18 would not be subject to the same difficulty (as it would not come until 2019), and that this would also allow time for further discussions about the appropriate level of cost for recovery through the charge.

16.250 We note that biomass is an emerging market where there is considerable uncertainty. Our analysis suggests that a charge of the scale being considered would represent only a small proportion of the delivered price of biomass; less than 1%, but relevant experts advise that industry margins are low and even a small increase in the delivered price could be influential to market development. As a result we have concluded that biomass will not be subject to the freight specific charge in CP5. As part of our wider work in the beginning of CP5 to improve our understanding of costs

and how they should be reflected in the structure of charges, we will ensure we involve biomass stakeholders.

16.251 The consultation responses and our further analysis of the issues are described in annex B.

Structure of this section

16.252 In the remainder of this section on the FSC, we describe further work that has been undertaken since our January conclusions document was published, discuss the implications of this further work for the FSC, determine the level of the FSC for CP5 and estimate the revenues that result from the charge being levied.

Further work carried out by Network Rail following our January decisions

16.253 The FSC will be set by reference to freight avoidable costs or FACs. We define FACs as the infrastructure costs that would be foregone if commercial freight services were no longer to use the network (where commercial freight services are those run for third party customers, as opposed to the infrastructure trains providing services to Network Rail).

Original estimate of freight avoidable costs

16.254 In 2012, Network Rail commissioned consultants L.E.K to estimate freight avoidable costs. L.E.K engaged extensively with the rail freight industry and used Network Rail modelling and analysis in order to estimate freight avoidable costs. L.E.K also developed an allocation of this cost between freight commodities (or market segments). We used this work as an input to our decisions on capping the FSC in January. The caps were set to reflect the low end of the range of our estimate of freight avoidable cost, which consisted of L.E.K's analysis adjusted by us following our own analyses and input from the reporter.

16.255 In anticipation of setting charges, we asked Network Rail to update its L.E.K. estimates to take account of recommendations made by our Reporters and to refine a number of cost estimates within its analysis. Specifically we asked Network Rail to:

(a) follow the recommendations of Arup in revising our estimate of variable usage costs (correcting its treatment of non-commercial freight);

(b) make other refinements proportionate to their impact on the determined charge, in particular allocation of costs associated with the possessions regime (Schedule 4) with respect to spent nuclear fuel;

(c) update the unit costs consistent with the SBP and other best estimates (rather than low range estimates) of freight avoidable costs; and

(d) refine the allocation of variable usage costs and netting off of other variable charges (with updated charge estimates).

L.E.K. scope of work

16.256 Network Rail therefore re-commissioned L.E.K to update its earlier work to take account of our comments and in particular to:

(a) incorporate changes in the underlying growth forecasts to reflect the SBP traffic forecasts;

(b) incorporate Network Rail's latest VITSM run in line with Arup's recommendations;

(c) update for the latest view on enhancements; and

(d) consider incorporating other changes as recommend by ORR / reporters where appropriate.

16.257 As part of re-commissioning L.E.K., Network Rail consulted on its proposed approach to the update as part of an industry letter in February 2013 on various freight charges (including a possible approach to calculating FOL charges for biomass).

16.258 L.E.K's updated report can be accessed via Network Rail's periodic review 2013 webpage[313] and is discussed further below.

L.E.K. updated estimate of FACs

16.259 A key concern about the original estimate of FACs reported by L.E.K previously was that the range of potential costs was extremely wide. The effect of the adjustments made in the final report is to narrow the range significantly; the low end increases by 41% and the high end reduces by 14%. L.E.K's revised estimate of gross FACs (prior to revenue from other charges being netted off) is £215-£428m per annum. This is a 35 year average figure, and accounts for forecast in freight traffic[314].

16.260 The principal drivers of the increase in L.E.K.s freight avoidable cost estimates are:

[313] http://www.networkrail.co.uk/publications/delivery-plans/control-period-5/periodic-review-2013/pr13-closed-consultations/.

[314] This is consistent with the calculation of costs for other charges, so that renewal costs are averaged over a long time period.

(a) increases in track maintenance and renewal cost estimate as a result of new VTISM results supplied by Network Rail: this increased the track variable usage cost estimate by £78 million at the low end of the range and £36m at the high end.

(b) the inclusion of redundant freight property assets cost estimate, this increased the redundant freight property asset cost range by £22m at the high end of the freight avoidable cost estimate range.

Increase in track and maintenance variable usage costs

16.261 The increase in track maintenance and renewal costs is as a result of Network Rail re-running its VTISM model reflecting recommendations made by Arup. In its initial estimate L.E.K used different VTISM model runs for its low and high case estimates. The low case estimate was based on marginal increases in traffic, whilst the high case run was based on the complete removal of traffic from the network. These produced very different results which L.E.K. was unable to reconcile and so used only the low case run to estimate track maintenance and renewal variable costs.

16.262 Arup found Network Rail's use of VTISM to be robust, including the high case estimate and identified a number of factors that led them to suggest a VTISM variable usage cost estimate range of 10% to 30% of the central estimate. Arup recommended that both the low and high cost VTISM run estimates should be used. In line with this recommendation L.E.K. adopted Arup's recommended methodology for both ends of the cost estimate range and applying this to Network Rail's updated central estimate of c. £165m produced an a updated track variable usage cost estimate range of £148-£214m[315].

Inclusion of redundant freight property cost estimates

16.263 In its initial analysis L.E.K. was unable to provide an estimate of the avoidable cost associated with the potential sale of redundant freight property assets. In our January conclusions document we set our own estimate of potential property sales as being in the range of £0-£22m. Network Rail considered this a reasonable, although possibly, conservative estimate. L.E.K. has therefore included £22m of property sales to the high end of its freight avoidable cost estimate range.

[315] Note that this is track variable costs only (i.e. it excludes civils and signalling costs) and so is not directly comparable with the variable costs presented in later tables.

Other updates with a less significant impact on the freight avoidable cost range

16.264 Other updates that have had a less significant impact on the freight avoidable costs estimate include:

(a) the impact of using Network Rail's SBP traffic forecast rather than the Initial Industry Plan (IIP) forecast as used in the original study. This had only a moderate effect on costs;

(b) revised FOL costs, which were reduced by £3m (net of variable usage costs) as a result of Network Rail's new SBP costs estimates and variable usage charges;

(c) other changes to variable usage costs reflecting Network Rail's revised SBP variable usage cost estimates for civils and signalling, reducing the civils costs estimate from £12m to £9m and signalling cost estimate from £3.5m to £3m. The new SBP traffic forecast implied a 13% increase in the uplift applied to these base costs resulting in an additional £2-3m in the freight avoidable costs estimate;

(d) Network Rail review of both Strategic Freight Network (SFN) and non-SFN projects resulted in a £7m decline in the low case estimate and £1m decline in the high case estimate for redundant enhancement costs; and

(e) changes to consequential costs reductions estimates, the principal impact on this cost category arises from a reallocation of Schedule 4 costs with respect to spent nuclear fuel, this resulted in a £4m reduction to the low end of the consequential cost reduction estimate range.

16.265 L.E.K's updated estimate of gross freight avoidable costs is provided in Table 16.39.

Table 16.39: L.E.K's updated estimated gross freight avoidable cost over 35 years (2011-12 prices)

Cost category	L.E.K. initial estimates (£m)		Updated estimates (£m)		Change (£m)		Change (%)	
	Low	High	Low	High	Low	High	Low	High
FOL costs	14	21	11	19	(3)	(3)	(21%)	(16%)
Redundant freight assets costs	6	12	5	32	(1)	20	(21%)	175%

Cost category	L.E.K. initial estimates (£m)		Updated estimates (£m)		Change (£m)		Change (%)	
Variable usage costs	96	215	173	249	77	35	80%	16%
Redundant enhancement costs	64	87	56	86	(7)	(1)	(12%)	(1%)
Consequential costs reductions	58	77	55	78	(3)	1	(5%)	1%
Consequential cost increases	(88)	(39)	(88)	(39)	-	-	-	-
Network Rail staff costs	4	5	4	5	-	-	-	-
Total	**152**	**377**	**215**	**428**	**63**	**51**	**41%**	**14%**

Note: numbers may not reconcile due to rounding.

16.266 Many of the changes made by L.E.K in the final version of its report reflect suggestions and/or adjustments that we made to its work previously. We note however that L.E.K has not adopted all of the changes that we proposed e.g. the changes that we suggested related to the costs of acquiring additional engineering trains to support Network Rail's own maintenance renewal and enhancement of the network has not been adopted. However, taking the changes made to the report in the round we have concluded that it is sufficiently robust for use in setting charges.

16.267 From its updated estimate of gross FACs L.E.K deduct revenue accruing from other charges on the freight industry. The most significant current charge is the variable usage charge which generates £63m p.a. of revenue from freight operators. After adjustment for revenue generated by all other charges the Network Rail/L.E.K updated estimate of net FACs is £130m to £311m per annum.

16.268 Using this estimate of net FACs Network Rail/L.E.K's analysis suggests that the FSC should be set at: £2.08 per kgtm for coal, £1.53 per kgtm for iron ore and £5.99 per kgtm for spent nuclear fuel.

Phasing in the FSC

16.269 In our January 2013 document we concluded that the charge would not be introduced until 2016 and then would be phased in gradually over the course of the remainder of

CP5. We provided an indicative profile for phasing and asked Network Rail to consult on phasing in of the charge which it did in February 2013.

16.270 Network Rail's conclusions were published on 23 April 2013[316]. In this document Network Rail confirmed its proposals to levy no charge in the first two years of CP5 and then to phase in the FSC at 20%, 60% and 100% of the full charge rate over the last three years of CP5 (i.e. no change in 2014-15 and 2015-16 and phasing in between 2016-17 and 2018-19). This would have had the effect of setting the charge to equate to the annual caps as set out in Table 16.40 consistent with our conclusions in January.

Table 16.40: Annual caps on the FSC in CP5 (2011-12 prices)[317]

Commodity	FSC cap, 2014-15	FSC cap, 2015-16	FSC cap, 2016-17	FSC cap, 2017-18	FSC cap, 2018-19
Phasing	0%	0%	20%	60%	100%
ESI coal	£0.00	£0.00	£0.80	£2.40	£4.04
Spent nuclear fuel	£0.00	£0.00	£2.15	£6.98	£11.64
Iron ore	£0.00	£0.00	£0.59	£1.77	£2.96

Our conclusions on the FSC

The level of the FSC in CP5

16.271 In January we set the caps on the FSC on a conservative basis i.e. at the low end of the adjusted range of net FACs. Consistent with this decision, charges for CP5 will also be set on a conservative basis. Our start point for this is the revised estimate of net FACs calculated by Network Rail/L.E.K.

16.272 However we are very conscious of the point made by many freight stakeholders that freight charges must be viewed in their entirety not on a charge by charge basis. In reaching our decision we have had regard to the cumulative impact on freight stakeholders of the various changes to freight charges. In reaching conclusion on the

[316] http://www.networkrail.co.uk/Conclusions-on-the-phasing-of-freight-specific-charge.pdf.

[317] This table sets out the caps on which we concluded in January 2013, using the phasing on which Network Rail concluded.

FSC we have had regard to the requirements of the Access and Management Regulations and also considered our broader statutory duties.

16.273 In this context, our review of charges for CP5 has resulted in a significant number of changes many of which increase the overall quantum of charges imposed on the freight sector.

16.274 We have reviewed the overall package of changes to freight charges and the likely impact of this package on freight operators and those of their customers who would be most affected. As part of this we have considered whether the package in the round alters the analysis of the FSC that we undertook ahead of our January conclusions document. In this context we consider that the increase in variable usage charges implied by the work that Serco undertook for Network Rail is material to the levying of the FSC. This is because the freight commodities that we are levying the FSC on will also face larger than average increases in variable usage charge. Although we anticipate that the FSC will, in large part, be passed on to freight customers, we have given weight to the fact that the freight commodities paying the FSC will need time to adapt to the increases in variable usage charge and FSC as a package.

16.275 In light of this we have used our judgement to conclude that the FSC should be set in CP5 at a level that is both below the caps established in January and the levels implied by Network Rail/L.E.K's latest analysis. The FSC for CP5 will therefore be levied as set out in Table 16.41.

16.276 We have taken the view that although the FSC should in principle be levied at a rate that reflects Network Rail/L.E.K's latest analysis, taking into account the changes to variable charges, even introducing this through CP5 on the basis of the gradual profile we had concluded should be adopted in our January decision would have an unacceptably high impact on some users. We considered whether we should phase the FSC in over a 10 year period (through CP5 and CP6) but concluded that we should not seek to constrain our thinking in PR18 in this way. Without in any way seeking to constrain our thinking in PR18, we therefore concluded that by the time it is fully implemented in CP5 (and we discuss phasing below) the FSC should represent 50% of what its full level would be based on the latest Network Rail/L.E.K analysis.

Table 16.41: Our conclusions on the FSC for CP5, prior to phasing (2012-13 prices)

Commodity	FSC charge (per kgtm)
ESI Coal	£1.04
Spent nuclear fuel	£3.00
Iron Ore	£0.76
Other commodities	£0.00

16.277 Setting the FSC at this level reflects movement towards greater cost reflectivity; freight will pay a greater share of the costs it imposes on the railway. However, the increase in the share of its costs that are recovered through charges is set to reflect our judgement of the appropriate balance of our statutory duties. On the one hand we have considered the need to promote efficiency and economy and have had regard to the funds available to the Secretary of State; on the other we have considered the need to both protect the interests of freight operators and their customers, to enable them to plan their businesses and our desire, and that of the governments, (reflected in their guidance to us) to facilitate a strong freight sector.

Phasing in the FSC during CP5

16.278 When we announced our intention to introduce the FSC earlier this year we also concluded that the charge should be phased in over the course of CP5. Network Rail's conclusions on phasing are that it will follow the profile zero per cent in years one and two, 20% in year three, 60% in year 4 and 100% in year 5. We have decided that this phasing profile should be retained in order to allow businesses time to adapt to the introduction of the charge. But as noted above 100% implementation now refers to full implementation of the CP5 level of the charge, which represents only 50% of the full charge implied by the latest Network Rail/L.E.K analysis. The FSC will therefore be phased in as set out in Table 16.42.

Table 16.42: Our conclusions on the FSC by year for CP5 (£ per kgtm, 2012-13 prices)

Commodity	FSC charge, 2014-15	FSC charge, 2015-16	FSC Charge, 2016-17	FSC Charge, 2017-18	FSC Charge, 2018-19
Phasing	0%	0%	20%	60%	100%
ESI coal	£0.00	£0.00	£0.21	£0.62	£1.04

Commodity	FSC charge, 2014-15	FSC charge, 2015-16	FSC Charge, 2016-17	FSC Charge, 2017-18	FSC Charge, 2018-19
Spent nuclear fuel	£0.00	£0.00	£0.60	£1.80	£3.00
Iron ore	£0.00	£0.00	£0.15	£0.46	£0.76

16.279 A significant benefit of our analysis to support the FSC is that it has given us a much clearer picture of the level of subsidy that Government provides to freight which can then be weighed against the broader benefits that the freight sector delivers.

16.280 We have worked with freight operators to secure commitment to reducing the avoidable costs that they impose on the network, including insufficient use of capacity. We expect to do more work with Network Rail, with freight operators and freight customers early in CP5 to get a better understanding of freight costs, to better inform PR18. In our forthcoming review of the structure of charges, working with the industry, we expect to consider how best to reflect the impact of freight traffic on the network in charges. We will also seek to move further towards our goal of greater cost reflectivity and understand more clearly the range of options that the freight sector has to reduce its impact on the network.

Our assessment of Network Rail's SBP forecast

16.281 Network Rail's Strategic Business Plan did not include an income forecast for the freight specific charge because at the time of its publication no decision on its introduction had been made. Network Rail has since estimated revenue from the charge but our determination means that these estimates will also overstate the charge. Table 16.43 therefore sets out our estimate of revenues from the charge using Network Rail's SBP traffic forecast.

Table 16.43: Our determination of FSC income in CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Freight	0	0	1.5	4.5	7.5	13.5
England & Wales						
Freight	0	0	1.2	3.5	6.0	10.7
Scotland						
Freight	0	0	0.3	0.9	1.6	2.8

Note: numbers may not reconcile due to rounding.

Fixed track access charge

16.282 The fixed track access charge (FTAC) or fixed charge recovers Network Rail's residual revenue requirement (often termed the net revenue requirement). The net revenue requirement is the revenue required by Network Rail to run its business, after accounting for the income received from variable track access charges and regulated station charges, other single till income and the network grant. FTAC is only paid by franchised passenger operators, although we will shortly consult on options to allow passenger open access operators greater access to the network in return for some contribution to fixed costs.

16.283 We consider that the way in which the fixed charge is allocated between franchised passenger train operators is important, and that Network Rail should make the charge as cost reflective as possible so that costs are recovered from those that cause them.

Calculating the charge in CP4

16.284 The framework for calculating and allocating FTAC was last reviewed as part of PR08 for CP4 when we accepted Network Rail's proposal to disaggregate the residual net revenue requirement on a more cost reflective basis.

16.285 In calculating FTAC for CP4, Network Rail calculated the net revenue requirement for England and Wales and separately for Scotland. In Scotland the net revenue requirement, less the network grant from Transport Scotland, became the total FTAC which was then allocated to the Scottish franchised operator.

16.286 For England and Wales, the same approach was applied; the net revenue requirement, less the network grant from Department for Transport (DfT), became the total FTAC which was then allocated to the franchised passenger operators.

16.287 Network Rail then allocated FTACs to operators using the following steps:

(a) use the infrastructure cost model (ICM) to calculate and allocate the relevant costs and income to each of the strategic route sections (SRS). Some common costs types, for example for the British Transport Police, were still allocated between franchised passenger operators at a national level;

(b) use the most relevant traffic metrics (e.g. train km, vehicle km, tonne km, electric train km) to divide each cost item between the operators using, or expected to use, that route section;

(c) use appropriate metrics to allocate national level costs to individual franchised passenger operators;

(d) identify any elements that should be ring-fenced to specific operators, for example, costs related to particular enhancement deals; and

(e) sum the elements for each TOC to give the level of FTAC by operator.

16.288 RAB related costs, such as amortisation and rate of return, also contributed to Network Rail's net revenue requirement and were therefore allocated to franchised passenger operators through FTAC. For CP4, we accepted Network Rail's suggestion that the allocation of the RAB related costs should remain high level based on SRS level percentage splits of the long run renewals forecast. These costs were then allocated to operators based on the appropriate traffic metric.

16.289 The above approach resulted in the net revenue requirement for Scotland being split between network grant from Transport Scotland and the ScotRail FTAC only. Similarly, the net revenue requirement for England and Wales was split between the network grant from DfT and all franchised passenger operators except ScotRail as the latter is specified by Transport Scotland and all the others by DfT.

16.290 An effect of the CP4 allocation approach was that, ScotRail paid no FTAC for usage of the network in England and Wales, and cross-border services running into Scotland paid no FTAC for their use of the Scottish network.

Calculating the charge in CP5

16.291 As part of the process for setting charges in CP5, we indicated to Network Rail that further progress should be made towards cost reflective allocation[318] and transparency. Network Rail therefore developed proposals for consultation with stakeholders[319]. In this consultation we asked Network Rail to:

(a) explore greater transparency in the allocation process e.g. through an increased level of disaggregation at route level[320]; and

(b) improve transparency by explaining the allocation of the charge between England and Scotland.

16.292 In its consultation, Network Rail proposed to increase the level of disaggregation by building upon the approach taken to calculate CP4 FTAC. The key differences for CP5 were that, the majority of cost and income forecasts have been developed at a route level and not by SRS, though some high level allocation was retained. Secondly, reflecting devolution to routes, Network Rail proposed that the FTAC should be split by route before being allocating to franchised passenger operators.

16.293 In relation to the RAB, Network Rail suggested that the approach should remain high level with allocation to routes based on route level percentage splits of the long run renewals forecast. In its consultation, Network Rail also made the following proposals:

(a) to retain the current approach on the allocation between England, Wales and Scotland;

(b) to calculate FTACs based on vehicle kms for remapped franchises in CP5;

(c) that facility charges should remain in place until the end of the agreed period as opposed to being incorporated into FTACs at control period changes;

(d) that the Welsh Valley Lines electrification project be funded through a facility charge via the operators benefitting from the investment rather than through an increased FTAC;

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[318] *Setting the financial and incentive framework for Network Rail in CP5*, ORR, May 2012, available at http://www.rail-reg.gov.uk/pr13/publications/financial-incentives.php

[319] *Fixed track access charges consultation*, Network Rail, November 2012, available at http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784245

[320] Route refers to Network Rail's ten devolved operating routes.

(e) that Crossrail costs would be treated as a franchise re-mapping in order that FTAC is paid by Crossrail services upon their introduction;

(f) to deduct TOC-specific facility charges and stations' long term charges from the specific operators' FTACs, to which they relate; and

(g) to provide an indicative split of the England and Wales RAB by route, which they expected to include as a memorandum item to the regulatory accounts in CP5.

Stakeholder responses to Network Rail proposals

16.294 We have reviewed responses to the Network Rail consultation[321]. The key points are outlined directly below.

16.295 First Group and Transport Scotland questioned the appropriateness of retaining the current approach to cross border services where the Scottish franchised passenger operator pays no FTAC for usage of the network in England and Wales, and English cross-border services running into Scotland pay no FTAC for their usage of the Scottish network. They suggested that Network Rail should consider an approach which allocates FTAC to operators in line with actual usage of the track.

16.296 Transport Scotland outlined its intention that the Caledonian Sleeper service be let as a new franchise. For a number of reasons, it suggested that the franchise could be treated in a manner broadly comparable with an open access operator on both sides of the border i.e. the operator would pay VUCs but no FTAC.

16.297 Go-Ahead suggested that given the proposal to create indicative route-based RABS, it would also be a positive step to calculate matching route-based single tills to improve transparency.

16.298 PTEG outlined their view that the FTAC proposals do not go far enough in improving cost reflectivity or transparency. For example, it felt that a full avoidable cost approach should be adopted and that moving to a route based approach from SRS was a backward step. Transport for London (TfL) also took the latter view and felt that FTAC should be calculated at SRS and then aggregated to route level as required.

[321] For more information on the responses, see *Conclusions on fixed track access charges consultation*, Network Rail, March 2013, http://www.networkrail.co.uk/fixed-track-access-charges-consultation.pdf.

16.299 More generally, Northern Rail took the view that the proposed approach for CP5 was not significantly different from CP4.

Network Rail conclusions

16.300 Network Rail's conclusions[322] broadly reflected the proposals it consulted upon with two minor exceptions:

(a) small refinements to the allocation metrics for apportioning costs to operators; and

(b) remaining open to different options for how a new Caledonian Sleeper service might be charged.

Our assessment of Network Rail's conclusions

16.301 We welcome the progress that Network Rail made in CP4 in significantly improving the approach to FTAC allocation by disaggregating costs and income at SRS level. We further welcome the development of route based FTACs for CP5 which is necessary to bring the approach in line with Network Rail's newly devolved structure. We agree with the proposal to deduct station long term charges and facility charges from the specific operators' FTAC to which they relate, as it improves the incentive properties of the charge.

16.302 Some issues over cross border charging and cost allocation have been identified. Currently, Transport Scotland funds the operation, maintenance and renewal of the Scottish network through fixed charges paid by the Scottish franchisee and variable charges paid by all operators using the Scottish network. Each country's net revenue requirement (after variable track access charges and other single till income have been taken into account) is ultimately funded, therefore, by the fixed charges paid by the franchisee(s) in each country. This means that the Scottish franchisee does not pay FTACs for its usage of the English network and DfT specified operators do not pay FTACs for their usage of the Scottish network. There are also issues over enhancements which may take place in, for example, Scotland but provide more benefit for England and vice versa. In our view it is important that charges are cost reflective and transparent and that we do not unnecessarily increase administration

[322] *Fixed charges in CP5 – conclusions*, Network Rail, March 2013, http://www.networkrail.co.uk/fixed-track-access-charges-consultation.pdf.

costs and we will discuss these issues with Transport Scotland, DfT, Network Rail and other stakeholders

16.303 The current approach to cross border services paying FTAC partly reflects the wider arrangements agreed between the then Scottish Executive (now Scottish Government) and DfT in 2005-06 when devolution of functions took place under the Railways Act 2005. Therefore, while we consider that change to the current approach could deliver improvements to cost reflectivity and transparency, we think that any possible alteration would require agreement between Transport Scotland and DfT before any changes could be implemented.

16.304 We are content with Network Rail's proposal on calculating FTAC for any re-mapped franchised services based on vehicle km as this straightforward approach should reflect changes in network usage and ensure consistency between re-mappings over the control period. However, we note that a different approach may need to be taken to a separate Caledonian Sleeper service in partnership with Transport Scotland and that we will need to consider the approach to charging for this service in more detail as plans develop.

16.305 We are pleased that Network Rail has proposed that facility charges should remain in place until the end of the recovery period rather than rolled into FTAC at the beginning of new control periods. Consistent with the investment framework, facility charges should continue to be paid by a new franchisee when a current franchise ends to reflect the benefit to operators that run services on areas of the network that have been enhanced.

16.306 We understand that the Welsh Government, DfT and Network Rail have agreed that the Valleys line electrification enhancement will be funded from a facility charge from the beginning of CP5. DfT will pay the costs in CP5 during construction, with relevant operators paying the charge once the enhancement comes into operation. DfT will recover its CP5 costs from the Welsh Government from the start of CP6. The agreement will therefore have no impact on the level of FTAC in Wales during CP5.

16.307 We understand that some Crossrail services will start in CP5. For example, in March 2013, TfL announced the letting of a concession for the operation of existing rail services between London Liverpool Street and Shenfield from May 2015 which will result in the successful bidding operator taking over the stopping services currently operated by Greater Anglia. We would expect this transfer of services to Crossrail, and any others subsequent transfers, to be treated as a franchise re-mapping in order that FTAC is paid by Crossrail services upon their introduction.

16.308 We set out our approach to disaggregation in our May 2012 setting the financial and incentive framework for Network Rail in CP5 document. Greater disaggregation of price controls is in line with our desire to increase transparency of costs and revenues, support better whole-industry incentives and will in particular facilitate more local decision making (localism). Greater disaggregation, especially when combined with the increasing autonomy of routes under Network Rail's 'devolution' strategy, could also, in CP6, allow us to move towards a more comparative approach to regulation. Further disaggregation is also a key enabler for facilitating change in the rail industry, e.g. through devolution, alliances and potentially concessions.

16.309 Consistent with our approach, in our determination in annex G we have included indicative calculations of Network Rail's revenue requirement (including charges), debt and RAB by operating route. This will aid transparency and provide a basis for further development.

Network Rail's SBP forecast

16.310 Due to the absence of a decision on network grant at this stage of the periodic review, Network Rail has assumed in its SBP that the English and Welsh FTAC will be equal to its net revenue requirement for England and Wales. Similarly, the Scottish FTAC will be equal to Network Rail's net revenue requirement for Scotland.

16.311 Table 16.44 shows Network Rail's estimated income for FTAC over CP5.

Table 16.44: Network Rail's estimated fixed track access charge income for CP5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Fixed track access charge	4,774	4,991	5,209	5,468	5,649	26,091
England & Wales						
Fixed track access charge	4,266	4,452	4,637	4,866	5,029	23,250
Scotland						
Fixed track access charge	507	538	572	602	620	2,839

Note: numbers may not reconcile due to rounding.

Our assessment of Network Rail's SBP forecast

16.312 Tables 16.45-16.48 shows our determination of FTAC income for CP5 under a range of scenarios[323] given Network Rail's net revenue requirement:

(a) FTAC based on the adjusted WACC approach after network grant is taken into account[324];

(b) FTAC based on the cost of capital approach after network grant is taken into account;

(c) FTAC based on the adjusted WACC approach assuming zero network grant; and

(d) FTAC based on the cost of capital approach assuming zero network grant.

Table 16.45: Our determination of fixed track access charge income for CP5 based on the adjusted WACC approach after network grant is taken into account

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Fixed track access charge	888	803	740	733	1,201	4,366
England & Wales						
Fixed track access charge	760	672	611	567	949	3,559
Scotland						
Fixed track access charge	129	131	129	167	252	807

Note:

1. Our assessment of FTAC reflects a level of network grant that is based on headroom of 5% for both government account rules (the market body test and investment test). This is explained in more detail in chapter 17.
2. Numbers may not reconcile due to rounding.

[323] Our determination does not include any possible changes to the cross-border approach to paying FTAC.

[324] Please refer to Chapter 17 for our decisions on network grant.

Table 16.46: Our determination of fixed track access charge income for CP5 based on the cost of capital approach after network grant is taken into account

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Fixed track access charge	888	811	757	942	2,073	5,471
England & Wales						
Fixed track access charge	760	680	626	680	1,727	4,472
Scotland						
Fixed track access charge	129	132	131	262	347	1,000

Note:

1. Our assessment of FTAC reflects a level of network grant that is based on headroom of 5% for both government account rules (the market body test and investment test). This is explained in more detail in chapter 17.
2. Numbers may not reconcile due to rounding.

Table 16.47: Our determination of fixed track access charge income for CP5 based on the adjusted WACC approach assuming zero network grant

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Fixed track access charge	4,840	4,788	4,774	4,771	4,780	23,952
England & Wales						
Fixed track access charge	4,307	4,241	4,218	4,220	4,234	21,220
Scotland						
Fixed track access charge	533	547	556	550	546	2,732

Note: numbers may not reconcile due to rounding.

Table 16.48: Our determination of fixed track access charge income for CP5 based on the cost of capital approach assuming zero network grant

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain						
Fixed track access charge	5,383	5,421	5,437	5,563	5,652	27,456
England & Wales						
Fixed track access charge	4,797	4,810	4,809	4,918	5,011	24,345
Scotland						
Fixed track access charge	586	611	628	645	641	3,111

Note: numbers may not reconcile due to rounding.

16.313 Once the network grant is established, Network Rail should continue to present the fixed track access charges on a gross basis (as if there were no network grant) as well as on an actual basis (with the network grant).

Station long term charge (LTC)

16.314 Network Rail is responsible for the maintenance, repair and renewal of most of the stations it owns. The Station Facility Owner (SFO) is responsible for the day to day management and operation of the station. Network Rail is the SFO for a small number of its larger stations, known as Managed Stations. For the majority of stations, the SFO is a franchised train operator.

16.315 Network Rail is to receive regulated income from stations in CP5 in the form of the station long term charge (LTC). This allows Network Rail to recover its efficient maintenance, renewal and repair costs associated with the franchised stations and managed stations that it owns.

16.316 Network Rail also receives income from managed stations qualifying expenditure (QX) and from franchised stations leases. However, with the exception of the management fee element of QX[325], these charges are not regulated by ORR. QX

[325] The SFO may levy the QX management fee on train operators using its stations. The management fee is set to recover the SFO's overheads in respect of operating, or procuring the operation of, the

covers the cost of the SFO's day-to-day running and operation of its stations. It also covers the reasonable costs incurred by the SFO for procuring or providing the services and amenities, which all users share. These charges are covered in more detail in annex C.

Franchised station LTC for CP4

16.317 The franchised station LTC has been set separately for each station but has been designed to reflect a reasonable expected long run efficient maintenance, repair and renewal (MRR) spend over the course of the control period at the level of the group of stations operated by each SFO, referred to as the portfolio of stations.

16.318 Individual station charges are not intended to be fully reflective of the specific spend at each station within the control period. They are instead designed to represent the proportion of the MRR expenditure for the portfolio of stations that would be spent on each station in the long run (over 35 years). It is therefore important to emphasise that it is unlikely that for an individual franchised station, the LTC revenue will be equal to MRR expenditure at that station. We are of the view it would not be helpful for train operators to link the two.

16.319 With the exception of managed stations, the SFO at the majority of stations is a franchised train operator. Other railway undertakings (Beneficiaries) using a station pay the SFO a proportion of the station LTC and a Qualifying Expenditure charge (covering a proportion of the costs incurred by the SFO in running the station). The proportion of the station LTC payable by a Beneficiary is usually based on its proportion of vehicle departures at that station, calculated in accordance with the methodology set out in the Station Access Conditions.

16.320 Until recently Network Rail was responsible for the MRR of all its stations. The current Greater Anglia franchise has full MRR responsibilities for its stations, and consequently does not pay the LTC to Network Rail. There is a possibility that a similar re-allocation of responsibility may take place for other new franchises, and in these instances charges may need adjusting to reflect reallocation of responsibility within the control period.

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station. In CP4, it amounted to around £2.5m income to Network Rail in total for the whole control period.

Managed station LTC for CP4

16.321 The managed station LTC has been calculated separately for each managed station. It has been calculated as the annual average of long run efficient MRR expenditure projected over a long time period (100 years). This was longer than for franchised stations in order to even out some of the extremes of spend found at these very large facilities. These extremes are more material for managed stations due to the scale of renewals costs at each station and the fact that there is no possibility to average across a larger portfolio.

Methodology for calculating the charge in CP5

16.322 In September 2012, Network Rail consulted with the industry on the structure of the station LTC at both franchised and managed stations in CP5. In January 2013, it concluded on this consultation.

16.323 Network Rail concluded that it would retain the LTC structure in broadly its current form in CP5. This included continuing to:

(a) base the franchised station LTC on total MRR expenditure at SFO portfolio level;

(b) calculate separate charges for each franchised station within each portfolio to reflect long term (35 year) average spend at individual station level;

(c) calculate the managed station LTC based on the annual average of long run efficient MRR expenditure projected over 100 years;

(d) levy the annual station LTC (for both franchised and managed stations) at a constant level for each year in CP5, albeit with uplifts for RPI; and

(e) exclude the cost of capital associated with stations from the LTC. This was to give a more meaningful cost reflective charge, i.e. reflective of expected expenditure across the relevant SFO's stations portfolio during CP5.

16.324 The main change to the methodology for CP5 was that Network Rail concluded that it would recover Stations Information and Security Systems (SISS) maintenance, renewal and repair costs from the LTC rather than FTAC.

16.325 Network Rail also proposed to include SISS maintenance and repair in the LTC in CP5 for Managed Stations. In CP4 the maintenance and repair costs in relation to SISS assets at Managed Stations have been captured through the stations QX

charge and FTAC respectively. It proposed this change in an e-mail to stakeholders in October 2012, shortly after the publication of its consultation letter.

16.326 In its consultation document, Network Rail proposed to charge at the portfolio level, rather than by station. This would involve each SFO receiving a single regular charge, reflecting the agreed settlement figure across its entire portfolio, rather than a charge for each station. In recognition that an SFO may need to recover some of the proposed portfolio LTC from beneficiaries at some or all of its stations, Network Rail proposed providing a percentage breakdown of portfolio costs by station. As a result of stakeholder responses to its consultation, in its January 2013 conclusions, Network Rail stated it would not adopt this proposal. Instead, as with CP4, it concluded to levy a charge for each individual station.

Our assessment of Network Rail's methodology for calculating the station LTC

16.327 We are content with Network Rail's conclusions regarding its methodology for the station LTC for CP5. In particular we agree with Network Rail's conclusion that:

(a) the structure of the station LTC should remain broadly the same in CP5 as in CP4. This is a view shared by the majority of stakeholders that responded to Network Rail's consultation;

(b) SISS expenditure should be included within the station LTC. This is more transparent and cost reflective than recovering SISS expenditure through the FTAC, since SISS expenditure can accurately be allocated to individual stations;

(c) SISS maintenance and repair at managed stations is treated as a landlord responsibility. This will result in the SISS expenditure categories captured in the managed station LTC being consistent with those captured in the franchised station LTC; and

(d) it continues to charge SFOs at station level, rather than at a portfolio level. The reason Network Rail gave initially for proposing to bill at portfolio level was to simplify charging arrangements. Responses from stakeholders suggested that it would instead result in an increase in the administrative burden on stakeholders.

Network Rail's SBP station LTC income forecast

16.328 The station LTC income forecasts Network Rail proposed in its SBP are based on its forecasts of stations MRR expenditure on buildings and SISS.

16.329 Tables 16.49 to 16.51 show Network Rail's SBP forecast for station LTC income for CP5. These figures are based on Network Rail applying a 16.1% efficiency overlay to the element of its pre-efficient station LTC income forecast relating to the recovery of buildings expenditure. This is inconsistent with the buildings expenditure efficiency overlay it submitted in its Tier 0 model, as part of the SBP, which was 16.6%. Network Rail has since confirmed that an efficiency overlay of 16.6% should have been applied, and on 23 April 2013, Network Rail published its draft station LTC price lists on this basis.

16.330 Network Rail applied an efficiency overlay of 15.0% to the element of its pre-efficient station LTC income forecast that is to recover SISS expenditure. This is consistent with the efficiency overlay in its Tier 0 model.

16.331 Network Rail's SBP forecast only includes SISS renewal costs. Network Rail has advised that it also intended to include SISS maintenance and repair costs. It has been unable to correct this error in time for inclusion in our draft determination. We will take it into consideration in our final determination. Network Rail has stated that it does not believe that this error will result in a material increase to LTC income[326].

Table 16.49: Network Rail's SBP estimated station LTC income for CP5 – Great Britain

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	CP5 Total
Managed stations						
LTC – buildings expenditure	25.6	25.6	25.6	25.6	25.6	128.2
LTC – SISS expenditure	4.9	4.9	4.9	4.9	4.9	24.5
LTC – total	30.5	30.5	30.5	30.5	30.5	152.7
Franchised stations						
LTC – buildings expenditure	126.3	126.3	126.3	126.3	126.3	631.7
LTC – SISS expenditure	17.8	17.8	17.8	17.8	17.8	89.1

[326] In the case of franchises stations it will be a redistribution from FTAC to LTC, and for managed stations a redistribution from QX to LTC.

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	CP5 Total
LTC – total	144.2	144.2	144.2	144.2	144.2	720.8

Note: numbers may not reconcile due to rounding.

Table 16.50: Network Rail's SBP estimated station LTC income for CP5 – England and Wales

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Managed stations						
LTC – buildings expenditure	23.9	23.9	23.9	23.9	23.9	119.5
LTC – SISS expenditure	4.4	4.4	4.4	4.4	4.4	21.8
LTC – total	28.3	28.3	28.3	28.3	28.3	141.3
Franchised stations						
LTC – buildings expenditure	114.0	114.0	114.0	114.0	114.0	570.1
LTC – SISS expenditure	16.9	16.9	16.9	16.9	16.9	84.6
LTC – total	130.9	130.9	130.9	130.9	130.9	654.7

Note: numbers may not reconcile due to rounding.

Table 16.51: Network Rail's SBP estimated station LTC income for CP5 – Scotland

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Managed stations						
LTC – buildings expenditure	1.8	1.8	1.8	1.8	1.8	8.8
LTC – SISS expenditure	0.5	0.5	0.5	0.5	0.5	2.7
LTC – total	2.3	2.3	2.3	2.3	2.3	11.5

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Franchised stations						
LTC – buildings expenditure	12.3	12.3	12.3	12.3	12.3	61.6
LTC – SISS expenditure	0.9	0.9	0.9	0.9	0.9	4.6
LTC – total	13.2	13.2	13.2	13.2	13.2	66.1

Note: numbers may not reconcile due to rounding.

Our assessment of Network Rail's SBP forecast

16.332 We have adjusted Network Rail's SBP submission on station LTC income to reflect our view of efficient CP5 stations MRR expenditure on buildings and SISS.

16.333 We did this by making an adjustment to reflect our assessment of pre-efficient expenditure on stations buildings and SISS, and applying our efficiency overlay for the final year of CP5. This is in order for the station LTC to reflect post-efficient expenditure on stations.

16.334 The efficiency overlays we applied are stated in Table 16.5. Our assessment of efficient buildings and SISS MRR expenditure is described in chapter 8 in our assessment of maintenance and renewals expenditure.

16.335 Tables 16.52 to 16.54 show our forecast station LTC income for CP5.

Table 16.52: Our determination of station LTC income stations for CP5 –Great Britain

£m (2012-13 prices)	CP4	CP5					CP4	CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total	Total
Managed stations								
LTC – buildings expenditure	22	24.7	24.7	24.7	24.7	24.7	112	123.5
LTC – SISS expenditure	-	4.5	4.5	4.5	4.5	4.5	-	22.4
LTC – total	-	29.2	29.2	29.2	29.2	29.2	-	145.9
Franchised stations								
LTC – buildings expenditure	134	104.3	104.3	104.3	104.3	104.3	669	521.7
LTC – SISS expenditure	-	16.0	16.0	16.0	16.0	16.0	-	80.2
LTC – total	-	120.4	120.4	120.4	120.4	120.4	-	601.9

Notes:

1. In CP4 SISS expenditure was not recovered through the stations long term charge. It is therefore only possible to compare CP5 stations buildings expenditure with CP4. CP4 totals are as per our PR08 Determination
2. Stations long term charge income for Greater Anglia stations has been removed from the CP4 figures, so CP4 and CP5 can be compared on a like for like basis
3. Numbers may not reconcile due to rounding.

Table 16.53: Our determination of station LTC income stations for CP5 – England and Wales

£m (2012-13 prices)	CP4	CP5					CP4	CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total	Total
Managed stations								
LTC – buildings expenditure	20	23.0	23.0	23.0	23.0	23.0	100	115.0
LTC – SISS expenditure	-	4.0	4.0	4.0	4.0	4.0	-	19.9
LTC – total	-	27.0	27.0	27.0	27.0	27.0	-	135.0

£m (2012-13 prices)	CP4	CP5					CP4	CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total	Total
Franchised stations								
LTC – buildings expenditure	120	94.2	94.2	94.2	94.2	94.2	597	470.8
LTC – SISS expenditure	-	15.2	15.2	15.2	15.2	15.2	-	76.0
LTC – total	-	109.3	109.3	109.3	109.3	109.3	-	546.7

Notes:

1. In CP4 SISS expenditure was not recovered through the stations long term charge. It is therefore only possible to compare CP5 stations buildings expenditure with CP4. CP4 totals are as per our PR08 Determination
2. Stations long term charge income for Greater Anglia stations has been removed from the CP4 figures, so CP4 and CP5 can be compared on a like for like basis
3. Numbers may not reconcile due to rounding.

Table 16.54: Our determination of station LTC income stations for CP5 - Scotland

£m (2012-13 prices)	CP4	CP5					CP4	CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total	Total
Managed stations								
LTC – buildings expenditure	2	1.7	1.7	1.7	1.7	1.7	13	8.4
LTC – SISS expenditure	-	0.5	0.5	0.5	0.5	0.5	-	2.5
LTC – total	-	2.2	2.2	2.2	2.2	2.2	-	10.9
Franchised stations								
LTC – buildings expenditure	15	10.2	10.2	10.2	10.2	10.2	73	50.9
LTC – SISS expenditure	-	0.8	0.8	0.8	0.8	0.8	-	4.2
LTC – total	-	11.0	11.0	11.0	11.0	11.0	-	55.2

Note: In CP4 SISS expenditure was not recovered through the stations long term charge. It is therefore only possible to compare CP5 stations buildings expenditure with CP4. CP4 totals are as per our PR08 Determination

Next steps

16.336 As a result of Network Rail excluding SISS maintenance and repair expenditure in the managed and franchised station LTC, these elements of stations expenditure are included in QX and FTAC respectively in our draft determination. Network Rail has advised us that it intends, following our draft determination, to re-allocate the recovery of SISS maintenance and repair expenditure into its updated station LTC price lists. We support this approach, and will adjust our final determination accordingly.

16.337 In CP4 we approved the QX management fee for managed stations on an annual basis. For CP5 we will instead determine any such fee as part of PR13. This is to increase certainty and reduce the administration costs associated with approving it separately.

Our consultation on charges and on-rail competition

16.338 We will shortly be publishing a consultation paper on on-rail competition. On-rail competition is direct competition between rival train operating companies competing against each other to attract passengers. Our consultation outlines options for change in allowing access to open access operators, who must presently pass a test that their access will not be primarily abstractive (NPA) in that the ratio of their newly generated business to that abstracted from other operators will be at least 0.3:1. The options we propose in our consultation paper involve increasing the opportunities available to open access operators, but at the cost of their bearing additional charges in the form of a mark-up over and above the variable access charges they currently pay to Network Rail.

16.339 We present two options for reform (Options 2 and 3) which are compared with Option 1, the status quo. Options 2 and 3 differ in the method of calculation of the mark-up as follows:

(a) under Option 2 an open access operator will, in return for a partial relaxation of the NPA test, pay a mark-up as a contribution to Network Rail's fixed costs that is calculated on the basis of the level of abstraction its services will bring over and above the permitted level; and

(b) under Option 3 an open access operator will, in return for a partial relaxation of the NPA test, pay a mark-up calculated in a similar manner to the way that charges are currently calculated for franchised passenger services and/or similar

to the ways in which we envisage these charges evolving in the future on all of its services. Two potential variants of Option 3 are discussed. They involve aligning the charging structure for open access operators failing the NPA test with, in the case of 3A, the charging regime that franchised passenger operators currently face and, in the case of 3B, an estimate of the avoidable costs caused by open access.

16.340 Following consultation we will consider which is the most appropriate option to pursue and will present our conclusions on our approach to on-rail competition in our final determination in October 2013.

Issues specific to charter services

16.341 Charter services generally consist of excursion trains or privately hired trips which do not carry passengers at ordinary fares and which operate on a bespoke basis. The structure of charges for these operators is consistent with that for other operators, but takes account of the scale of charter operations so that the administrative burden associated with billing track access charges is not disproportionate. This is set out in the mode charter passenger track access contract.

16.342 In 2013, five train operators holding charter passenger track access contracts operate charter services: DB Schenker, West Coast Railway Company, Direct Rail Services, GB Railfreight and First Great Western.

16.343 Charter services run approximately 410,000 train miles per year on Network Rail infrastructure. That represents less than 0.2% of total passenger (franchised and open access) mileage. Network Rail's income from these operators in 2012-13 was approximately £1m.

16.344 The regulated track access charges for charter operators in CP4 consist of the following:

(a) variable usage charge (VUC);

(b) traction electricity charge (EC4T);

(c) electrification asset usage charge (EAUC);

(d) slot charges; and

(e) cancellation charges.

16.345 These are set out in more details below.

16.346 A VUC to recover Network Rail's operating, maintenance and renewal costs which vary with traffic. Unlike other passenger and freight operators, who are charged on a "per vehicle" basis, in CP4 charter operators have been charged on a "per train" basis in order to reduce the administrative complexity of the charge.

16.347 There are two VUC rates that apply to charter operators, based on notional "average" non-steam hauled and steam hauled charter trains. These are shown in Table 16.55 These are consistent with other VUCs, but reflect a typical charter train. The simplification is intended to reduce administrative burden. Therefore, for charging purposes, charter trains are assumed to be made up of:

(a) non-steam hauled: a locomotive (assumed to be the average of the rates for a Class 47 and a Class 67 locomotive with a 2:1 weighting in favour of the Class 67 to reflect frequency of use) plus 11 coaches (assumed to be the average of the rates for Mark 1, 2 and 3 coaches); and

(b) steam hauled: a locomotive (assumed to be 50% more expensive that the above non-steam hauled locomotive rate) plus 11 coaches (assumed to be the average of the rates for Mark 1, 2 and 3 coaches).

Table 16.55: 2012-13 charter train VUC rates

Service type	VUC (£/train mile)
Diesel or electric equipment	1.21
Steam equipment	1.45

16.348 Furthermore, the charter model track access contract states that the VUC should not be levied on charter "light locomotive movements".

16.349 A traction electricity charge (EC4T) to recover the costs of electricity supplied by Network Rail to train operators. In practice, only around 1% of total charter traffic mileage is run with electric trains.

16.350 The charter model contract includes provisions for modelled EC4T charging. However it does not include provisions for the volume wash-up applied in the case of other operators (passenger and freight). Historically however, Network Rail has deemed it administratively inefficient to put in place a robust process to charge charter operators

for their EC4T due to the very small amount of electric train miles operated by charter operators.

16.351 An EAUC designed to recover the variable maintenance and renewal costs associated with electrification assets. Similarly to EC4T charges, the charter model contract includes provisions to collect the EAUC, however Network Rail has historically deemed it to be administratively inefficient to levy the EAUC on charter operators.

16.352 Slot charges contribute towards Network Rail's costs for activities undertaken specifically for charter services, for which it is not otherwise funded.

16.353 Cancellation charges are designed to recover the proportion of the slot charge that has already been incurred before the decision has been taken to cancel the train.

16.354 Under the current arrangements, the capacity charge is not levied on charter operators. This is because at the time PR08 was conducted charter operators' access contracts were not based on a model contract, and did not contain a periodic review re-opener, so that there was no provision to levy a new charge as part of PR08. Following PR08, during CP4, ORR developed the charter model track access contract, but did not immediately levy a capacity charge, because such a change to the structure of charges should be implemented through a formal periodic review process rather than through the contract change mechanism. The model terms do however include a periodic review re-opener, so that a capacity charge can be levied as appropriate as part of PR13.

Network Rail's proposals for charges for CP5

16.355 On 28 May 2013, Network Rail issued[327] a consultation letter to the charter industry, setting out its proposals for changes to the charging arrangements outlined above. The consultation period is due to end on Tuesday, 11 July 2013. We encourage charter operators and any other interested parties to respond to the Network Rail consultation. In summary, the Network Rail consultation proposed the following changes for charter operators.

[327] Network Rail consultation letter of 28 May on structure of charges for charter operators in CP5, http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064786015

16.356 Network Rail proposed retaining the existing approach for charging the VUC to charter operators, based on notional "average" charter train sets. It proposed to refresh the CP4 VUC charter rates. The technical considerations underpinning the refreshed rates can be found in Network Rail's letter referenced above. The proposed VUC rates for CP5 are shown in Table 16.56.

Table 16.56: CP5 charter train VUC rates as proposed in Network Rail's consultation letter (2012-13 prices)

Service type	VUC (£/train mile)
Diesel or electric equipment	1.20
Steam equipment	1.52

16.357 In addition, Network Rail proposed that light locomotive movements should no longer be exempt from being charged VUC. On a consistent basis with the rates highlighted above, Network Rail has calculated and published the rates for light locomotive movements shown in Table 16.57, to be charged per vehicle mile rather than per train mile.

Table 16.57: CP5 light locomotive VUC rates as proposed in Network Rail's consultation letter (2012-13 prices)

Service type	VUC (£/vehicle mile)
Diesel or electric equipment	0.63
Steam equipment	0.95

16.358 In relation to EC4T charges, Network Rail intends to bring this in line with arrangements in place for other electric operators, and formally charge charter operators for their use of EC4T in CP5, on either a metered or unmetered basis.

16.359 EC4T charges in the charter model contract are based on a price indexed by IIEC (Index of Industrial Electricity Prices). Network Rail also intends to charge charter operators on the basis of actual unit electricity prices paid by Network Rail, consistent with those paid by passenger operators.

16.360 For EAUC, Network Rail also proposed updating the arrangements and formally billing charter operators.

16.361 No other changes to current arrangements were proposed by Network Rail. However, the letter did observe that there may be a case for charging the capacity charge on charter operators in the future, to reflect charter operators' impact on capacity utilisation, and consequently on the financial risk Network Rail faces in relation to additional Schedule 8 payments.

The capacity charge

16.362 As outlined above, in CP4 charter operators have not been subject to a capacity charge. While we understand that historically there have been good reasons for this, we believe that from the point of view of ensuring non-discrimination, it would be right to introduce a charge to reflect their impact on capacity utilisation and the financial risk they impose on Network Rail. Therefore, we plan to introduce a capacity charge for charter operators in CP5. We intend to engage with the industry further before making our final determination in this area and we will shortly be holding a workshop with charter operators to discuss Schedule 8 and the capacity charge.

16.363 As discussed above, we are also making changes to the Schedule 8 arrangements for charter operators, through the introduction of a benchmarked regime, consistent with that applied for other passenger and freight operators. With the introduction of benchmarks in the Schedule 8 charter regime, on the basis of CP4 delays, we expect charter operators to be no worse off than they are currently, even with the introduction of a capacity charge.

16.364 Therefore, we believe that through this package of measures we are bringing the charter industry more in line with the other operators, with minimum disruption to their businesses.

The traffic forecasts used to forecast charges income

16.365 Network Rail has forecast traffic volumes for each of its routes for each year of CP5 in order to estimate the income it will receive from all track access charges excluding FTAC (which is not levied per unit of traffic). Its traffic forecasts also drive some of its estimates of costs, notably maintenance and renewal costs, as well as other considerations including performance and capacity.

16.366 In this section we:

(a) set out how Network Rail has prepared its traffic forecasts,

(b) explain our understanding of the extent to which the forecasts drive the forecasts of Network Rail's costs and income for CP5, and hence

(c) the implications of the forecasts for our determination of Network Rail's income from charges in CP5 and its net revenue requirement.

16.367 Network Rail submitted its SBP traffic forecasts to us as part of its infrastructure cost model (ICM) submission. This model was used to forecast income from charges, the results of which Network Rail published[328].

16.368 Consistent with the basis on which different charges are levied, for freight services its forecasts were in train km, and gross tonne km for each permutation of vehicle category and commodity; and for passenger services its forecasts were in train miles for each service code, and vehicle km for each vehicle category[329]. Summary statistics for the forecasts are shown in Table 16.58.

Table 16.58: SBP traffic forecasts: growth in traffic 2013-14 to 2018-19

	Freight		Franchised Passenger		Open Access Passenger		All electrified traffic
Metric	Train km	Tonne km	Train km	Vehicle km	Train km	Vehicle km	Vehicle km
Great Britain							
	24%	25%	1%	3%	2%	3%	24%
England & Wales							
	24%	26%	1%	3%	2%	3%	23%
Scotland							
	17%	16%	1%	2%	0%	0%	40%

Source: Network Rail Infrastructure Cost Model

[328] See Network Rail's SBP supporting documents on financing and funding, which set out income forecasts for each of the charges. http://www.networkrail.co.uk/browseDirectory.aspx?root=&dir=%5cStrategicBusinessPlan%5cCP5%5cSupporting%20documents%5cFinancing%20and%20funding

[329] For legacy reasons, charges are billed on the basis of miles, whereas Network Rail conducts much of its analysis using km.

16.369 Network Rail's SBP forecasts were derived from 2011-12 actual traffic. Network Rail forecast changes in passenger traffic for CP5 by taking account of planned and other expected changes to services, for example resulting from infrastructure enhancements. However, some parts of the network, for some times of the day, have sufficient spare capacity that they may experience increases in traffic without associated infrastructure enhancements or other investment. Network Rail has sought to forecast this underlying growth in vehicle km using guidance from the industry-standard Passenger Demand Forecasting Handbook. We consider that its approach has been sensible and balanced.

16.370 It has forecast changes in freight traffic for CP5 by taking account of the freight forecasts prepared for Network Rail's March 2007 Freight Route Utilisation Strategy[330]. Subsequent to the publication of the SBP, Network Rail has published new draft forecasts in its freight market study as part of its long term planning process[331]. We are aware that slightly different traffic forecasts are used elsewhere in the SBP and we have asked Network Rail to correct for this when it calculates its draft price lists and hence income forecasts.

16.371 Traffic forecasts drive not only charges income, but costs also. Forecasts inevitably become out of date, and this has occurred with respect to the SBP freight forecasts. We do not consider that using the SBP freight forecasts rather than these later freight forecasts materially affects our decisions or determination of Network Rail's funding, however. In particular:

(a) the general charging principle is that charges are set to equal costs directly incurred. Where charges are set on this basis, any divergence in traffic from that forecast will mean variations in cost that are exactly off-set by variations in charging revenue. The net effect on Network Rail's financial position is zero; and

(b) in some cases charges do not equal costs directly incurred. This will occur in the cases when changes are being delayed or phased in, or a particular charge is a

[330] http://www.networkrail.co.uk/browseDirectory.aspx?dir=%5CRUS%20Documents%5CRoute%20Utilisation%20Strategies%5CFreight

[331] Network Rail published the freight market study on 25 April 2013, http://www.networkrail.co.uk/improvements/planning-policies-and-plans/long-term-planning-process/market-studies/

mark-up on costs directly incurred. Our assessment is, however, that the effect of this is small in the context of the impact of uncertainty in the freight forecasts on calculating Network Rail's net revenue requirement. We have a high degree of confidence with respect to the forecasts of passenger traffic, though inevitably actual traffic may diverge from that forecast. We assess any error associated with forecast freight charging income offset by associated variable costs not to be material to our determination of Network Rail's net revenue requirement.

Implementation

16.372 Our conclusions will be implemented through changes to Schedule 7 of the track access contract and changes to station access agreements.

Implementation through the track access contracts

16.373 On 12 July 2013 we will consult on the contractual changes necessary to implement this draft determination. Network Rail will publish price lists consistent with our determination. As part of the changes we make to track access contract for PR13, we will change the price list to which the contracts refer from the CP4 price lists (published on 18 December 2008) to those for CP5, with reference to the date of publication. By referring to the date of publication, any price list published subsequently will not be valid within CP5 without the operator's consent (and we do not anticipate any such a price list being published).

Implementation through the station access contracts

16.374 Network Rail will publish price lists consistent with our determination. As part of the changes we make to stations access agreements for PR13, we will direct changes to update the stations long term charge for each station.

Adjusting access charges for inflation

16.375 Consistent with our approach to risk and uncertainty, as presented in Chapter 12, Network Rail's track access charges and station long term charges will continue to be adjusted each year for general inflation as measured by the retail price index.

16.376 The inflation adjustment to the price list is specified in the track access contract and Station Access Conditions. We will set out the proposed indexation methodology on 12 July 2013, when we consult on the changes to access contracts and station access agreements we consider necessary to implement our PR13 determination.

New or amended track access charges during CP5

16.377 Inevitably, following the issue of the final price lists for CP5, there will be situations during the control period when new or amended charges need to be set, for example, following the introduction of new rolling stock, or to apply discounts for regenerative braking. The existing model passenger and freight track access contracts currently provide for this, by allowing supplements to be made to the price lists[332].

16.378 We have recently reviewed the price list supplements provisions in Schedule 7 of the passenger and freight model track access contracts with the aim of improving the process and making them clearer and more consistent. We will seek Network Rail's and train operators' views on this on 12 July 2013 when we consult on the changes to access contracts and station access agreements we consider necessary to implement our PR13 determination.

Our conclusions on charges for different stakeholders

16.379 In this section we summarise our conclusions on charges, presenting them in terms of charges and estimated revenue for constant levels of traffic.

Franchise passenger services and passengers

16.380 Table 16.59 shows our determination of track access charges for franchise passenger services. The value of FTAC is contingent on the size of network grants and is not shown in the table.

Table 16.59: Our determination of variable charges for CP5 for franchise passenger services

Type of charge	Payable in CP5 by	CP4 charge (pence per vehicle mile)	CP5 charge(pence per vehicle mile)
VUC (estimated weighted average)	All services	9.36	9.32
Capacity charge (estimated weighted average)	All services	10.2	10.2

[332] These supplements apply only in respect of individual contracts; it is not possible to make global changes to the price lists so that they apply to all train operators. We consider that price lists can only be changed through an access charges review.

Type of charge	Payable in CP5 by	CP4 charge (pence per vehicle mile)	CP5 charge(pence per vehicle mile)
EAUC – DC (third rail)	Electrically powered services	0.47	0.72
EAUC – AC (overhead line)	Electrically powered services	1.24	1.62

Notes: the capacity charge is levied per train mile not vehicle mile, but is shown per vehicle mile to aid comparison

16.381 Table 16.60 shows revenue for each charge. To facilitate comparison, we have held prices, electricity prices and traffic levels constant for all years (and hence EC4T income is shown to be the same in each year).

16.382 On average, PR13 has very little impact on passenger charges. This will vary however between different types of vehicle. Charges in CP3 were a broadly similar level to CP4 and CP5, but with substantially higher VUC and lower capacity charge, as documented in our PR08 final determination.

Table 16.60: Network Rail income from franchise passenger services by charge (Great Britain, £m a year, 2013-14 traffic)

Charge	CP3	CP4	CP5	Change CP4 to CP5
VUC	319	159	159	-1%
Capacity charge	8	174	174	0%
EAUC	38	9	12	38%
EC4T (consistent electricity prices)	229	229	229	0%
Total, variable charges	**594**	**572**	**575**	**1%**

Notes:

1. The table shows charges determined as part of PR13. These do not include payments associated with Schedules 4 and 8, which are set out in chapter 20, and payments not determined as part of PR13.
2. EC4T revenue assumes constant electricity prices as well as traffic.
3. Numbers may not reconcile due to rounding.
4. CP3 revenue estimated on the basis of Table 19.14 in PR08 final determination.

16.383 Franchise services also receive Schedule 4 and pay Network Rail an access charge supplement to finance Schedule 4. They also receive and pay Network Rail Schedule 8 payments. These payments are set out in chapter 20.

Freight services and their customers

16.384 Table 16.61 shows our determination of track access charges for freight services. For those charges for which an increase is phased in, only the charges for the first and last year of CP5 are shown in this table: they are shown for each year of CP5 in full in the relevant section of this chapter.

Table 16.61: Our determination of charges for CP5 for freight services

Type of charge	Payable in CP5 by	CP4 charge (£ per kgtm)	CP5 charge (£ per kgtm)
VUC (estimated weighted average)	All services	1.76	1.76 (2014-15) rising to 1.94 (2018-19)
Capacity charge (estimated weighted average)	All services	0.15	0.15
Coal spillage	Services transporting coal	0.32 (2009-10) 0.25 (2012-13)	0.39
EAUC – DC (third rail)	Electrically powered services	0.0628	0.0498
EAUC – AC (overhead line)	Electrically powered services	0.1178	0.2482
FOL charge	ESI coal	0.53	0.50
FOL charge	Iron ore	0.00	0.00 (2014-15) rising to 0.76 (2018-19)
FOL charge	Spent nuclear fuel	5.34	5.34 (2014-15) rising to 27.50 (2018-19)
FSC	ESI coal	0.00	0.00 (2014-15) rising to 1.04 (2018-19)
FSC	Iron ore	0.00	0.00 (2014-15) rising to 0.76 (2018-19)
FSC	Spent nuclear fuel	0.00	0.00 (2014-15) rising to 3.00 (2018-19)

Notes:

1. The capacity charge is levied per train mile not per kgtm, but is shown per kgtm to aid comparison
2. kgtm = thousand gross tonne miles.

16.385 Table 16.62 and 16.63 show charges revenue broken down by charge and by rail freight commodity respectively. To facilitate comparison, we have held prices, electricity prices and traffic levels constant for all years (and hence EC4T income is shown to be the same in each year). As increases in some charges are phased in over time, we show both revenue for the charge at the end of CP5 (2018-19) and as an average for CP5. Commodities with relatively low shares of traffic that are not subject to a FSC are aggregated in the category "other".

16.386 Overall, in real terms, charges are set to increase by around 21% on current levels by 2018-19, equivalent to 4% a year average. For commodities not affected by the FSC, the corresponding increases are 4% and 1% respectively. There will be large variation in the extent of increase in charges for individual commodities, with track access charges falling marginally for some commodities, and increasing materially for others.

Table 16.62: Network Rail income from freight services by charge (Great Britain, £m a year, 2013-14 traffic)

Charge	CP3	CP4	CP5 average	End CP5 (2018-19)	Change CP4 to 2018-19	Average annual increase
VUC	103.1	59.8	61.9	65.8	10%	2%
Capacity charge	4.8	4.8	4.8	4.8	5%	1%
Coal spillage charge	4.2	2.0	3.0	3.0	48%	8%
EAUC		0.3	0.6	0.6	110%	16%
Freight-only line charge		3.9	3.9	4.4	14%	3%
Freight specific charge		0.0	2.8	7.9		
EC4T (consistent electricity prices)	6.2	6.2	6.2	6.2	0%	0%

Charge	CP3	CP4	CP5 average	End CP5 (2018-19)	Change CP4 to 2018-19	Average annual increase
Total variable charges	118.1	77.0	83.2	92.7	21%	4%

Notes:

1. Coal spillage charge revenue for CP4 is 2012-13, with charge below that set in PR08. EC4T revenue assumes constant electricity prices as well as traffic.
2. The table shows charges determined as part of PR13. These do not include payments associated with Schedules 4 and 8, which are set out in chapter 20, and payments not determined as part of PR13.
3. Numbers may not reconcile due to rounding.
4. CP3 revenue estimated on the basis of Table 19.15 in PR08 final determination.

Table 16.63: Network Rail income from freight services by key commodity (Great Britain, £m a year, 2013-14 traffic)

£m (2012-13 prices)	CP4	2014-15	2015-16	2016-17	2017-18	2018-19	% annual increase CP4 to end CP5
Domestic intermodal	24.6	24.9	24.9	24.6	24.1	23.2	-1%
Construction materials	9.5	9.5	9.5	10.0	10.6	11.8	4%
Steel	6.3	6.3	6.3	6.4	6.6	7.0	2%
Petroleum	3.3	3.3	3.3	3.3	3.1	2.9	-3%
Biomass	2.4	2.4	2.4	2.5	2.5	2.6	1%
Coal other	1.3	1.4	1.4	1.5	1.6	1.8	6%
European intermodal	1.4	1.4	1.4	1.4	1.3	1.2	-2%
Industrial minerals	0.9	0.9	0.9	1.0	1.0	1.1	3%
Domestic automotive	0.8	0.8	0.8	0.8	0.8	0.7	-3%
Other	3.4	3.4	3.4	3.5	3.7	4.0	3%
Total, commodities to which FSC does not apply	**55.0**	**55.3**	**55.3**	**55.7**	**56.3**	**57.3**	**1%**
ESI coal	21.3	22.1	22.1	24.5	28.7	33.8	10%
Iron ore	0.4	0.4	0.4	0.5	0.6	0.7	12%

£m (2012-13 prices)	CP4	2014-15	2015-16	2016-17	2017-18	2018-19	% annual increase CP4 to end CP5
Nuclear	0.3	0.3	0.3	0.4	0.7	0.9	29%
Total, commodities subject to FSC	**22.0**	**22.8**	**22.8**	**25.3**	**29.9**	**35.5**	**10%**
Total	**77.0**	**78.1**	**78.1**	**81.0**	**86.2**	**92.7**	**4%**

Notes:

1. The table shows charges determined as part of PR13. These do not include payments associated with Schedules 4 and 8, which are set out in chapter 20, and payments not determined as part of PR13.
2. Numbers may not reconcile due to rounding.

Open access passenger services and passengers

16.387 Table 16.64 shows our determination of charges for open access passenger services.

16.388 The tables in this section show the capacity charge without correction for anomalies. There are some anomalies in the levying of the capacity charge that we plan to address in time for CP5.

Table 16.64: Our determination of variable charges for CP5 for open access passenger services

Type of charge	Payable in CP5 by	CP4 charge (pence per vehicle mile)	CP5 charge(pence per vehicle mile)
VUC (estimated weighted average)	All services	13.28	13
Capacity charge (estimated weighted average)	All services	6	6
EAUC – DC (third rail)	Electrically powered services	0.47	0.72
EAUC – AC (overhead line)	Electrically powered services	1.24	1.62

Notes:

1. The capacity charge is levied per train mile not vehicle mile, but is shown per vehicle mile to aid comparison
2. Due to data constraints, we estimate the open access weighted charges to one or two significant figures only.

16.389 The impact of our determination on track access charges for open access passenger services is shown in Table 16.65. As with the equivalent previous tables, we have assumed constant traffic and electricity so that the impact of PR13 is shown in full.

Table 16.65: Open access passenger revenue by charge (Great Britain, £m a year, 2013-14 traffic)

Charge	CP4	CP5	Change CP4 to CP5
VUC	2.5	2.5	-1%
Capacity charge	1.1	1.1	0%
EAUC	0.0	0.0	100%
EC4T (consistent electricity prices)	3.7	3.7	0%
Total	7.3	7.3	1%

Notes:

1. The table shows charges determined as part of PR13. These do not include payments associated with Schedules 4 and 8, which are set out in chapter 20, and payments not determined as part of PR13.
2. EC4T revenue assumes constant electricity prices as well as traffic.
3. Numbers may not reconcile due to rounding.

Next steps

16.390 Following our draft determination, Network Rail will publish revised draft price lists for passenger and freight services, excluding charter services, consistent with our determination. It will do this on or before 12 July 2013. In addition, on 12 July 2013 we will consult on the contractual changes necessary to implement this draft determination.

16.391 Network Rail will also conclude on its consultation on charges for charter operators, and we are shortly to engage with charter operators to decide on a process for making complementary reforms to Schedule 8 and the capacity charge in charter track access contracts.

16.392 In this chapter, we are consulting on an alternative to the capacity charge. We will conclude on this as part of our final determination, including how any such change would be implemented.

16.393 Following our final determination, Network Rail will publish its final price lists on or before 20 December 2013. This will apply from the start of CP5.

17. Network grant

Key messages in this chapter

- Network grants are paid directly by DfT and Transport Scotland to Network Rail 'in lieu of' some fixed track access charges.
- Our preferred method of funding Network Rail is for all of its income to come from train operators and other customers and not through network grant, but we recognise the governments' reporting and affordability issues. So we have decided to allow part of Network Rail's income to be provided directly by the governments through network grants, which will be set ex-ante for each year of CP5, as we did in CP4.
- We have presented a number of options showing different levels of network grant based on different ways of applying public sector accounting and the governments' reporting rules.

Introduction

17.1 This section sets out the options on the level of network grant payments that we will allow Network Rail to receive from DfT and Transport Scotland in CP5 'in lieu of' some fixed track access charges.

Background and approach

17.2 A proportion of Network Rail's revenue requirements have in the past been paid directly by DfT and Transport Scotland to Network Rail in the form of network grants, 'in lieu of' some fixed track access charges, on a pound-for-pound basis[333].

17.3 Our preferred method of funding Network Rail is for all of its income to come from train operators and other customers and not through network grants, but we recognise public sector accounting and reporting rules and both governments' affordability position. So we decided in December 2012 to allow part of Network Rail's income to be provided directly by the governments through network grants, which will be set ex-ante for each year of CP5, as we did in CP4. The policy issues relevant to this

[333] The level of the network grants in CP4 is similar to our PR08 forecast of Network Rail's capital expenditure.

decision are discussed in the financial framework chapter (chapter 12) and in our December 2012 financial issues decision document.

17.4 In PR08, we set the level of network grants with reference to the governments reporting rules, which say that direct grants paid to Network Rail are accounted for as capital expenditure in the governments' accounts, whereas the equivalent money paid to train operating companies (who in turn pay track access charges to Network Rail) are accounted for as resource (current) expenditure. In previous control periods, the level of network grants have been set by way of two financial tests, which relate to the governments' budgeting and statistical practice:

(a) **investment test**: this states that network grants that are accounted for as capital expenditure in the governments' accounts, cannot exceed Network Rail's capital investment (i.e. renewals and enhancements). Any network grants paid in excess of capital investment are accounted for as resource expenditure. This test applies in respect of the governments in England & Wales and Scotland separately; and

(b) **market body test**: this test requires that to be classified as a market body, Network Rail's annual income from sales (equal to access charges plus other single till income) covers at least half of the company's production costs (equal to operating and maintenance expenditure and statutory depreciation). This test applies to Network Rail as a whole and separate calculations do not need to be made for England & Wales and Scotland. We are currently considering how forthcoming changes to the governments budgeting and statistical reporting, may affect the calculation and use of the market body test[334].

17.5 In our December 2012 financial issues decisions document, we said that given the importance of driving more commercial relationships in the industry, we are keen to see the level of network grants decline in CP5. Therefore, we have not strictly applied the governments' reporting rules but have used them as a reference point. In particular, we have looked at different approaches to how we can factor headroom into the calculation. The adjustment for headroom recognises that Network Rail's

[334] The European System of Accounts 2010 (ESA10) will replace the European System of Accounts 1995 (ESA95) for reporting of the UK National Accounts from 2014 and ESA10 includes a different definition of production costs to ESA95.

outturn income and costs in CP5 could be different to our forecast and, everything else being equal, the headroom reduces the maximum level of the network grants in our calculations.

17.6 In PR08, we only applied headroom to the market body test to increase the threshold required for the test from 50% to 55% (i.e. we applied headroom of 5%). For PR13, we think it is more appropriate to apply headroom to both the investment test and the market body test. Therefore, we have shown below the levels of grant that we could allow for England & Wales and Scotland in CP5 based on headroom assumptions of 5%, 15% and 25%. These assumptions are derived from our work on modelling the limits on financial indebtedness and our analysis of the potential variance in Network Rail's expenditure in CP5.

17.7 To provide further transparency, we have set out clearly in annex F what the level of fixed track access charges would be in the absence of direct network grant payments by operating route. In this way, it is clearer where the network grant goes, and – through our work in setting and monitoring outputs and key performance indicators (KPIs) – what taxpayers are getting for their money.

Schedule of network grant payments for CP5

17.8 Tables 17.1 and 17.2 set out our assessment of the options for the level of network grant payments in CP5, calculated on the basis set out above.

Table 17.1: Our assessment of the options for CP5 network grant payments in England & Wales

(£m 2012-13 prices)	England & Wales					
PR08	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**CP4 total**
Network grant	3,724	3,746	3,774	3,703	3,398	18,344
PR13	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**CP5 total**
Scenario 1: 5%	3,547	3,569	3,607	3,654	3,284	17,661
Scenario 2: 15%	3,183	3,194	3,228	3,270	2,939	15,813
Scenario 3: 25%	2,819	2,819	2,849	2,886	2,593	13,966

Table 17.2: Our assessment of the options for CP5 network grant payments in Scotland

(£m 2012-13 prices)	Scotland					
PR08	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**CP4 total**
Network grant	403	396	447	313	282	1,842
PR13	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**CP5 total**
Scenario 1: 5%	405	416	427	383	294	1,925
Scenario 2: 15%	366	375	385	343	263	1,731
Scenario 3: 25%	327	333	343	303	232	1,538

17.9 The potential network grants in CP5 are 49.0% - 61.9% of Network Rail's gross revenue requirement in England & Wales and 47.5% - 59.6% in Scotland. This is £683m to £4,378m lower than the PR08 level in England & Wales and £83m higher to £304m lower than the PR08 level in Scotland.

17.10 Although the network grant payments represent a significant revenue stream for Network Rail, the company will still receive a large amount of money direct from train operators as shown in the access charges chapter (chapter 16).

17.11 We will discuss the options for the level of the network grant payments in CP5 further with Network Rail and the governments and will decide on them in our final determination.

18. Other single till income

Key messages in this chapter

- The elements of other single till income (OSTI) covered in this chapter mainly relate to Network Rail's property business and income from some enhancements undertaken by Network Rail, such as Crossrail. The other elements of OSTI, e.g. freight charges and stations income are included in the access charges chapter (chapter 16). Annex C provides a reconciliation of the elements of OSTI included in this chapter and the elements of OSTI included in the access charges chapter (chapter 16), to our assumption of OSTI in the calculation of the net revenue requirement in Network Rail's revenue requirement chapter (chapter 14).
- A review of Network Rail's property income forecasts in its SBP shows that Network Rail may be able to generate a higher level of income in CP5 compared to the assumptions in its SBP. For example, we think that in its SBP Network Rail does not take sufficient account of the potential growth in its income from its property portfolio as a result of forecast passenger growth. Also, Network Rail's SBP forecast of income from property sales and other opportunities was conservative.
- The cost of capital used for the return on investment framework projects has been reduced from 6% in CP4 to 4.91% in CP5. This is consistent with our determination of Network Rail's cost of capital as discussed in the financial framework chapter (chapter 12).
- We have included additional income (and the corresponding capital expenditure) in our determination resulting from investments that Network Rail could make in CP5 in its property portfolio as well as on stations. Network Rail's forecast in its SBP was only based on schemes that had been identified at the time it prepared its SBP.

Introduction

18.1 This chapter sets out our assessment of Network Rail's likely income from sources other than access charges in CP5. Other single till income (OSTI) is subtracted from the gross revenue requirement, pound for pound to calculate the net revenue requirement.

18.2 The elements of OSTI that we assess in this chapter consist of income derived from:

(a) Network Rail's property portfolio (e.g. income from station retail outlets, property sales etc). Therefore this stream of income is affected by external markets; and

(b) income from some enhancements undertaken by Network Rail such as Crossrail

18.3 This chapter excludes the elements of OSTI related to charges from freight and open access operators, station long term charges, station qualifying expenditure, station lease income and depots income, which are assessed in the access charges chapter (chapter 16).

18.4 Annex C provides a reconciliation of the elements of OSTI included in this chapter and the elements of OSTI included in the access charges chapter (chapter 16), to our assumption of total OSTI in the calculation of the net revenue requirement in the Network Rail's revenue requirement chapter (chapter 14). The other elements of OSTI, e.g. non-regulated charges are included in annex C.

Network Rail's SBP

18.5 Network Rail's SBP focused on the three main areas of OSTI covered in this chapter: property income and property sales; finance charges for the Crossrail and Welsh Valley projects and facility charges on investment framework schemes.

18.6 Tables 18.1, 18.2 and 18.3 summarise Network Rail's SBP forecast of OSTI in CP5. All numbers have been rounded to the nearest £100k.

Table 18.1: Network Rail's SBP forecast of other single till income in CP5 (Great Britain)

£m (2012-13 prices)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CP4 Total	CP5 Total
Property rental	292.0	261.0	267.3	271.4	275.8	280.9	1,293.0	1,356.4
Property sales		19.7	20.5	20.5	21.0	19.9		101.6
Adjustment for commercial opex	-31.7	-30.6	-30.8	-30.8	-30.8	-30.8	-180.2	-153.8
Crossrail finance charge	-	32.0	52.0	70.0	83.0	89.0	-	326.0
Welsh Valleys finance charge	-	0.6	1.6	3.7	8.4	13.5	-	27.8
Facility charges – station depot and track	44.0	50.6	53.9	53.6	53.3	53.0	147.0	264.4
Other	13.0	13.7	9.8	9.8	9.8	9.8	78.0	52.9
Total non-charge related income	**317.3**	**347.0**	**374.3**	**398.2**	**420.5**	**435.3**	**1,337.8**	**1975.3**

Table 18.2: Network Rail's SBP forecast of other single till income in CP5 (England & Wales)

£m (2012-13 prices)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CP4 Total	CP5 Total
Property rental	274.5	245.3	251.3	255.1	259.3	264.0	1,214.0	1,275.0
Property sales		18.5	19.3	19.3	19.7	18.7		95.5
Adjustment for commercial opex	-28.9	-28.8	-29.0	-29.0	-29.0	-29.0	-169.4	-144.8
Crossrail finance charge	-	32.0	52.0	70.0	83.0	89.0	-	326.0
Welsh Valleys finance charge	-	0.6	1.6	3.7	8.4	13.5	-	27.8
Facility Charges – station depot and track	43.3	49.8	53.1	52.8	52.5	52.2	145.0	260.4
Other	12.7	13.3	9.5	9.5	9.5	9.5	77.0	51.3
Total non-charge related income	**300.7**	**330.7**	**357.8**	**381.4**	**403.4**	**417.9**	**1,266.6**	**1891.2**

Table 18.3: Network Rail's SBP forecast of other single till income in CP5 (Scotland)

£m (2012-13 prices)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CP4 Total	CP5 Total
Property rental	17.5	15.7	16.0	16.3	16.5	16.9	79.0	81.4
Property sales		1.2	1.2	1.2	1.3	1.2		6.1
Adjustment for commercial opex	-1.9	-1.8	-1.8	-1.8	-1.8	-1.8	-10.8	-9.0
Facility charges – station depot and track	0.7	0.8	0.8	0.8	0.8	0.8	2.0	4.0
Other	0.3	0.3	0.3	0.3	0.3	0.3	1.0	1.5
Total non-charge related income	**16.6**	**16.2**	**16.5**	**16.8**	**17.1**	**17.4**	**71.2**	**84.0**

Property income (property rental and property sales)

18.7 Network Rail stated in its SBP that its property division's role is to provide "high quality professional property services to support the railway, delight our customers and stakeholders and help to reduce industry costs". Network Rail pointed out that although the maximisation of revenue for the property division is important, it should not be seen in isolation from the rail network. For example, if a railway arch tenant causes a fire, the resulting compensation that is paid is likely to exceed the rental income received. Furthermore, Network Rail states that the requirement for access to the railway infrastructure limits its ability to securitise rental streams.

18.8 Network Rail's IIP forecast total property income in Great Britain of £1,707m is 14.5% higher than it forecast in its PR13 SBP. Network Rail said that this reflects the contraction in the property market since Network Rail's PR13 IIP and the subdued economic outlook. The effect is due to a combination of:

(a) a lower baseline at the start of CP5;

(b) a reduction in the number of developments to open up revenue streams at major stations; and

(c) a reduction in growth assumptions based on long term economic forecasts for CP5.

18.9 Network Rail's forecast property rental income for Great Britain in CP5 is £1,356m. Network Rail forecasts that income from managed station retail units (which is

included in property rentals income) will increase on average by 1.95% per annum. This is driven mainly by property market forecasts, which in Network Rail's view continue to be subdued during the control period.

18.10 Potential property sales in CP5 have been identified by Network Rail on a project by project basis. Then Network Rail applies a probability of success factor to each project, to derive the total income from property sales of £101m for Great Britain in CP5.

Crossrail finance charge and Welsh Valleys finance charge

18.11 Government sponsored non-HLOS funded schemes are funded by a finance charge, which is levied by Network Rail to compensate it for the capital invested in the project.

Crossrail finance charge

18.12 This charge relates to upgrade works (referred to as on-network works) on existing Network Rail track required in order to carry Crossrail trains across the non-tunnel sections of the Crossrail route.

18.13 Network Rail's SBP includes the capital expenditure on the project based on the estimated £1,444m of capital works in CP5. To ensure that the costs of the project are borne by the co-sponsors (DfT and Transport for London (TfL)), Network Rail will be remunerated by Crossrail Limited ("CRL") for an investment framework "financing charge" which is based upon the project's phased capital profile and Network Rail's WACC for investment framework schemes. This investment framework charge will also recover the capital cost of the project through the amortisation element of the finance charge. We are currently discussing with Network Rail, DfT and TfL how this financing charge will be calculated.

18.14 The income forecast in Network Rail's SBP is based on the forecast profile of the capital programme. We will therefore assess for the final determination, whether we need to update our assumptions for changes to the profile of the capital programme[335].

[335] The estimated income from this project of £326m in CP5 is only included in England & Wales and Great Britain.

Welsh Valleys finance charge

18.15 This finance charge in our determination for this project is calculated based on the same approach as for the Crossrail project and we are currently discussing with Network Rail, DfT and the Welsh Government how it will be calculated. The sponsor is the Welsh Government and the project relates to the electrification of the Valleys line along with the Great Western Main Line between Cardiff and Bridgend.

18.16 The capital cost associated with the Welsh Valleys project in CP5 is included in enhancement expenditure in Network Rail's SBP. This forecast is a Network Rail mid-point GRIP 2 estimate, which is based on the Welsh Government's Outline Business Case (OBC). However, as the scheme progresses the forecast is expected to be refined[336].

Facility charges – station, depots and track

18.17 Network Rail generates income from investment framework projects where it carries out capital works which are not planned as part of the periodic review process. This income is received through facility charges paid to Network Rail by the project sponsors. Income of £264m for Great Britain in relation to investment framework projects that had been identified by Network Rail at the time it prepared its SBP, was included in its SBP. In Great Britain, stations and depots income was forecast to be £208m and track income was forecast to be £56m. Network Rail used a 6% WACC assumption to calculate the charge, which is the rate of return allowed under the CP4 regulatory settlement for these schemes.

Other charges (HS1 and TOC insurance)

18.18 High Speed 1 ("HS1") income is derived from Network Rail's activities on the HS1 network under a management contract. Network Rail does not own the HS1 network but it carries out the asset management, operation (including timetabling), maintenance and renewal of the HS1 network. Network Rail has assumed in its SBP that net revenues from HS1 will fall from £10.4m to £6.5m per annum as a result of PR14 (HS1 periodic review). However, this is uncertain as HS1's access charges will be determined in 2014.

[336] The estimated income from this project of £28m in CP5 is only included in England & Wales and Great Britain.

18.19 Insurance is purchased by Network Rail on behalf of the TOCs and the cost of £3m per annum for Great Britain is re-charged to the TOCs.

Our view of the SBP

Summary

18.20 Table 18.4 summarises our assessment of projected OSTI covered in this chapter in CP5 for Great Britain.

Table 18.4: Our assessment of other single till income in CP5 (Great Britain)

£m (2012-13 prices)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CP4 Total	CP5 Total
Property rental	292.0	272.1	307.7	331.1	357.6	387.9	1,293.0	1,656.4
Property sales		34.7	35.5	35.5	36.0	34.9		176.6
Adjustment for commercial opex	-31.7	-30.6	-30.8	-30.8	-30.8	-30.8	-180.2	-153.8
Crossrail Finance Charge	-	29.2	47.2	64.2	75.9	81.6	-	298.1
Welsh Valleys Finance Charge	-	0.5	1.3	3.0	6.9	11.1	-	22.8
Facility Charges – Station depot and Track	44.0	47.2	52.8	55.5	58.1	60.8	147.0	274.4
Other	13.0	13.7	13.7	13.7	13.7	13.7	78.0	68.5
Total non-charge related income	**317.3**	**366.8**	**427.4**	**472.2**	**517.4**	**559.2**	**1,337.8**	**2343.0**

18.21 Table 18.5 summarises our assessment of projected OSTI in CP5 for England & Wales.

Table 18.5: Our assessment of other single till income in CP5 (England & Wales)

£m (2012-13 prices)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CP4 Total	CP5 Total
Property rental	274.5	255.8	289.2	311.2	336.1	364.6	1,215.4	1,557.0
Property sales		32.6	33.4	33.4	33.8	32.8		166.0
Adjustment for commercial opex	-29.8	-28.8	-29.0	-29.0	-29.0	-29.0	-169.4	-144.8
Crossrail Finance Charge	-	29.2	47.2	64.2	75.9	81.6	-	298.1
Welsh Valleys Finance Charge	-	0.5	1.3	3.0	6.9	11.1	-	22.8
Facility Charges – Station depot and Track	43	46.3	51.7	54.2	56.8	59.3	145.0	268.3
Other	12.7	13.4	13.4	13.4	13.4	13.4	77.0	67.0
Total non-charge related income	**300.7**	**349.0**	**407.2**	**450.4**	**493.9**	**533.8**	**1,266.6**	**2234.4**

18.22 Table 18.6 summarises our assessment of projected OSTI in CP5 for Scotland.

Table 18.6: Our assessment of other single till income in CP5 (Scotland)

£m (2012-13 prices)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CP4 Total	Total
Property rental	17.5	16.3	18.5	19.9	21.5	23.3	79.0	99.4
Property sales		2.1	2.1	2.1	2.2	2.1		10.6
Adjustment for commercial opex	-1.9	-1.8	-1.9	-1.9	-1.9	-1.9	-10.8	-9.4
Facility Charges – Station depot and Track	0.7	0.9	1.1	1.2	1.4	1.5	2.0	6.1
Other	0.3	0.3	0.3	0.3	0.3	0.3	1.0	1.5
Total non-charge related income	**16.6**	**17.8**	**20.1**	**21.6**	**23.5**	**25.3**	**71.2**	**108.2**

Property rental and property sales income

18.23 Network Rail's SBP property forecasts for CP5 and the methodology underlying them were reviewed by DTZ on our behalf to obtain an independent view on the robustness of its assumptions and forecasts of property income.

18.24 DTZ said that Network Rail's SBP forecasts were based on broadly reasonable assumptions. However, overall it thinks that Network Rail's forecast of property

income in CP5 is too conservative. The main reasons for this were that DTZ consider that:

(a) as much of Network Rail's property is located within stations, which service the rail network, Network Rail's retail operations will benefit from the considerable growth in the number of railway passengers forecast over CP5 (projected at 4% per annum);

(b) Network Rail could improve its tenant mix and make greater use of rents based on the turnover of the lessee. In addition, further revenue uplift could be facilitated by a negotiated reduction in the number of protected leases (i.e. leases within the security of tenure provisions of the 1954 Landlord & Tenant Act.) which represent 28% of its managed stations units;

(c) Network Rail's forecasts for property sales in CP5 were relatively conservative and it considered there was scope to significantly increase the income from property sales. For example, through the use of joint venture agreements; and

(d) Network Rail had not factored into its SBP forecasts, income from projects that have a low probability of happening but can be material. Historical precedence at Network Rail indicates that, on a portfolio basis, some of these low probability and possibly material projects can happen. For example, the Victoria Place project, was not identified in PR08, but is now contributing to Network Rail's income. Also, Project Mountfield (a proposed acquisition by Network Rail of freight sites from DB Schenker), was actively considered by Network Rail but has not happened but could become a source of income in the future. Therefore, some income from low probability schemes was included in DTZ's property income assumptions.

18.25 Overall, DTZ's report presented its forecast of Network Rail's property income in CP5 as a range. This range was £1,539m to £1,833m for Great Britain and its base forecast was £1,645m for Great Britain. This compares to Network Rail's SBP assumption for Great Britain of £1,458m (£1,356m property rental and £102m property sales). Also, DTZ consider that the high end of its range does not represent the most extreme outcome that is possible.

18.26 We agree with DTZ that Network Rail's forecast of property income in CP5 in its SBP is too conservative, primarily due to the reasons outlined above and we think that

DTZ's range was based on reasonable adjustments to Network Rail's assumptions but some of those adjustments may have been too cautious.

18.27 Therefore, we have decided that in our determination we will use the "upper" end of DTZ's range of property income for Great Britain (£1,656m of property rental and £177m of property sales for Great Britain), this total income of £1,833m for Great Britain is 25.7% higher than Network Rail's SBP. We consider this assumption will be challenging but achievable and in reaching our decision we have taken account of Network Rail's response to DTZ's report.

18.28 Also, Network Rail's SBP forecast income in Tables 18.1, 18.2 and 18.3 above excludes income relating to projects which were not specifically identified by Network Rail at the time it prepared its SBP, but nevertheless based on previous experience, it can be reasonably predicted that some opportunities for future developments will materialise. Therefore, we have included an estimate of the future income from these schemes of £122m for Great Britain in our draft determination in Table 18.4 above (based on DTZ's "high" scenario, which was uplifted from its base forecast of £120m). In our enhancements determination in the enhancements chapter (chapter 9), we have included Network Rail's forecast of £231m of capital expenditure required to deliver these projects.

Crossrail finance charge and Welsh Valleys finance charge

18.29 We have amended the financing charges for the Crossrail and Welsh Valleys projects to reflect Network Rail's real "vanilla" WACC of 4.31% for CP5, as described in the impact of financial framework on financial parameters chapter (chapter 13), as Network Rail assumed a real "vanilla" WACC of 4.75%. For the Welsh Valleys finance charge, we have also reduced the finance charge assumption in our determination to reflect our adjustment to the project's efficient capital cost (this is discussed in the enhancements chapter (chapter 9)).

Facility charges – station, depots and track

18.30 There are two types of projects that generate station, depot and track facility charges. First, those projects that are included in Network Rail's SBP. We have used Network Rail's estimates of income as this is based on projects that are already in place but adjusted the income to reflect our 4.91% (real, pre-tax) cost of capital assumption (described in the impact of financial framework on financial parameters chapter

(chapter 13)), as Network Rail assumed in its SBP that the cost of capital would remain unchanged from CP4 (6%).

18.31 Second, there are speculative projects which are not yet known and not included in Network Rail's SBP. We think that it is important that our determination reflects as closely as possible Network Rail's likely income in CP5 and the associated capital expenditure even when the project is not yet specifically known. Therefore, for these projects we have based our assumptions on Network Rail's "central" scenario for these projects, which was for Great Britain £37m per annum (2012-13 prices) of capital expenditure, as this is a reasonable assumption given the uncertainty in this forecast. This is based on the trend in CP4 but excludes large one-off projects like Evergreen and the Nottingham hub, as projects of this magnitude are unlikely to occur with such frequency during CP5. Based on the 4.91% cost of capital (pre-tax, real), we estimate this will yield total income for Great Britain of £58m (2012-13 prices) in CP5.

18.32 We apply a real "vanilla" WACC to government sponsored projects and a pre-tax WACC to other projects. This is because our approach to the calculation of our corporation tax assumptions, in our calculation of Network Rail's revenue requirement, is to base them on forecast cash payments.

18.33 The governments will fund the corporation tax consequences of the projects over the long-term. However, other sponsors of investment framework projects may not still be in place in the future to fund the cash corporation tax payments when they materialise.

Other charges (HS1 and TOC insurance)

18.34 Network Rail has assumed in its SBP that net revenues from HS1 will fall from £10.4m to £6.5m as a result of PR14 (HS1 periodic review). We consider that it is not appropriate to prejudge that process and therefore we have not included that adjustment. Therefore, our assumption is that the income Network Rail will receive from HS1 will be unchanged at £10.4m per annum.

18.35 Following a review by Willis, our insurance consultants, we have not changed Network Rail's forecast of the £3m per annum of income that it is estimating it will receive from insurance recharges in CP5.

Table 18.7 Difference between Network Rail SBP and ORR draft determination for Great Britain

£m (2012-13 prices)	2014-15	2015-16	2016-17	2017-18	2018-19	CP5 Total
Property rental	11.1	40.4	59.7	81.8	107.0	300.0
Property sales	15.0	15.0	15.0	15.0	15.0	75.0
Crossrail finance charge	-2.8	-4.8	-5.8	-7.1	-7.4	-27.9
Welsh Valleys finance charge	-0.1	-0.3	-0.7	-1.5	-2.4	-5.0
Facility charges – station, depots and track	-3.4	-1.1	1.9	4.8	7.8	10.0
Other	0.0	3.9	3.9	3.9	3.9	15.6
Total non-charge related income	19.8	53.1	74.0	96.9	123.9	367.7

19. Financial incentives

Key messages in this chapter

- We are encouraging the industry to work together to improve productivity and reduce costs and to deliver better for its customers. We are doing this by strengthening and developing incentives to better align the interests of Network Rail and its customers, the train operators, and to make Network Rail more commercially responsive to the needs of its customers.
- We are improving the existing efficiency benefit sharing mechanism by replacing it with a route level incentive mechanism. This route level incentive will encourage Network Rail and the operators to work together and allow both to share in efficiency gains or losses on an annual basis.
- To encourage franchised operators to take a more active interest in periodic reviews, we have asked franchising authorities to provide new franchises with exposure to changes that we make to the variable usage charge at future periodic reviews. We will also work with governments to explore how we can increase franchised train operators' exposure to the fixed charge and to changes in it. These are decisions for the governments. DfT has said that it will consider this for future franchises. However Transport Scotland has confirmed that it does not intend to expose the new ScotRail franchise to changes in access charges.
- We are strengthening the incentives for the industry to work together to drive down the costs of infrastructure projects. We want Network Rail and operators to enter into commercial agreements that will reward operators if real cost savings are achieved.
- We support research and development and innovation as a means of improving Network Rail's productivity and reducing its costs in the medium to long term. Subject to a well justified proposal from the company, we will introduce a matched-funding financial incentive whereby we will make provision in the settlement for each additional pound which Network Rail spends on R&D or innovation to be matched (up to a cap), and consider wider changes to the regulatory framework.

Key messages in this chapter (continued)

- We are encouraging Network Rail to act more like a commercial organisation – which makes informed judgements about what amount of capacity to provide, at what cost and to whom. We are doing this by improving the existing volume incentive mechanism. Network Rail has committed to a range of measures to strengthen the way in which it acts on the incentive internally. The incentive will be disaggregated to a route level and we are introducing a downside and increasing incentive payment rates to increase its impact.

Introduction

19.1 This chapter relates to financial incentives. As we described in the overall incentives chapter if Network Rail's income is set at a level which is equal to its costs, since it does not face competition, it has limited incentive to improve its productivity and control its costs. Further, as Network Rail's variable charges do not cover all the costs of providing capacity, the company does not have an incentive to make commercial judgements about whether to accommodate unexpected additional demand for the use of its network.

19.2 A possible solution to this is to design individual charges in a way that provides these incentives, but the current structure of charges does not do this. We are establishing a longer–term project to work with the industry to review the existing structure of charges and to consider how it might be improved, including how the incentive properties of the charges might be strengthened. But, at present, financial incentives are required to supplement the structure of charges and to provide these incentives. In PR13 we have reviewed and modified the existing financial incentives framework to improve its incentive properties by:

(a) developing the existing efficiency benefit sharing mechanism into a **Route-level efficiency benefit sharing (REBS) mechanism.** This incentive is designed to strengthen the alignment of incentives between Network Rail and train operators – through the development of a clear, simple and comprehensive default mechanism in CP5 for Network Rail to share efficiencies with train operators – in order to support greater co-operation to drive down industry costs. It works by

allowing efficiency gains or losses to be shared between Network Rail and its customers (i.e. operators) on an annual basis;

(b) asking franchising authorities to provide new franchises with **exposure to technical (or cost-reflective) changes in the variable usage charge** at future periodic reviews. We will work also with governments to explore how we can increase franchised train operators' exposure to the fixed charge and to changes in it. The rationale is similar to that for REBS but the mechanism works by giving operators a greater interest in infrastructure costs at a periodic review;

(c) strengthening the incentives for the industry to work together to drive down the costs of infrastructure projects and to align scope, specification and delivery of projects better with the needs of the operational railway and its customers. We want Network Rail and operators to enter into **commercial agreements** that will help Network Rail to achieve improvements and reward both parties if these are achieved;

(d) supporting investment in R&D and innovation by introducing a **matched-funding financial incentive and wider regulatory changes,** subject to a well justified proposal from the company; and

(e) developing the **existing volume incentive mechanism** in terms of both its design and payment rates in order to improve its effectiveness. The volume incentive is designed to encourage Network Rail to consider unexpected demand from its customers and in doing so to make trade-offs similar to those made by a company operating in a more commercial setting.

Route-level efficiency benefit sharing

Overview

19.3 In December 2012, we published our decisions on the route-level efficiency benefit sharing (REBS) mechanism[337]. This mechanism is intended to strengthen the incentive to reduce infrastructure costs. It works by increasing passenger and freight train operators' interest in these costs by exposing them to these costs in each year of the control period.

[337] *Aligning incentives: decisions on route-level efficiency benefit sharing (REBS) and train operator exposure to Network Rail's costs at a periodic review*, December 2012, available at http://www.rail-reg.gov.uk/pr13/PDF/aligning-incentives-decisions-dec12.pdf.

Rationale

19.4 In a normal competitive market, when a company reduces its costs, its customers should benefit over time as a result of the lower prices or better service they receive. There are market incentives in place for firms to work together with their suppliers to help reduce their suppliers' costs and for suppliers to encourage them to do so. In the rail industry these normal market incentives are not effective, primarily because franchise agreements provide franchisees with a high degree of insulation from the financial impact of changes to access charges, both upwards and downwards, at a periodic review.

19.5 Ultimately, we want to see the relationships between Network Rail and operators put on to a more commercial footing, in which operators are exposed to changes in Network Rail's costs (through the charging framework) and so have an incentive to help the company to reduce them. There are already cases where train operators are fully exposed to costs, e.g. traction electricity costs and freight and open access operators' exposure to changes in variable charges.

19.6 This exposure has led those train operators to put considerable effort into investigating and challenging Network Rail's costs and efficiency in those areas. But only a very small proportion of Network Rail's total cost base is affected. We are keen to see the level of engagement and challenge that these operators bring, and the extent to which Network Rail and operators work together to identify and achieve cost savings, extended.

REBS decisions

19.7 We are replacing the existing efficiency benefit sharing mechanism (EBSM) with a REBS mechanism. This mechanism will expose train operators to Network Rail's costs in each year of the control period and will:

(a) **operate at a Network Rail operating route level:** EBSM operated at a national level but REBS will operate at a route level to strengthen the relationship between the effort of individual train operators to reduce Network Rail's costs and the pay-outs they receive;

(b) **provide operators with capped upside (25% share) exposure and downside (10% share) exposure to Network Rail's financial performance:** caps limit the risk of gains and losses for operators and the upside/downside exposure

incentivises operators to work with Network Rail regardless of whether it is underperforming or outperforming our determination assumptions;

(c) **have pay-outs which take into account efficiencies achieved in alliances:** this will support industry cost reductions as it provides incentives on Network Rail, the alliance partner, and secondary operators to support route-level cost savings, both inside and outside of alliance arrangements; and

(d) **provide train operators with an opt-out from the mechanism (by route)[338]:** an opt-out provides train operators with the opportunity (but not the obligation) to enter into arrangements to share in Network Rail's performance. Network Rail will be required to make REBS available to all train operators. By the start of the control period, train operators that enter into REBS will have had the opportunity to evaluate the risks involved, i.e. they will have visibility of our final determination and the baselines (which will be set before the start of the control period) and be able to assess the likelihood of outperformance and underperformance.

19.8 REBS provides train operators with the opportunity to receive short-term financial benefits in return for helping Network Rail to deliver long-term industry cost reductions. We consider that the capped pay-outs under REBS represent good value for money in terms of the wider efficiencies they will generate. For example, EBSM pay-outs to train operators totalled £15.9m for the first three years of CP4 but the outperformance achieved is likely to generate significantly higher long-term savings for passengers, freight customers and funders[339]. Furthermore, although the focus of REBS is on outperformance, train operators will also be at risk from underperformance. It is not simply a 'no-lose' situation for train operators.

19.9 We see REBS in CP5 as a stepping stone to the development of more commercial relationships within the industry. As our preference is for more commercial

[338] We understand that the governments will allow new franchised train operators to retain the rewards and costs of participating in REBS but not existing franchised operators. This decision does not affect the ability of open access operators (passenger and freight) to retain the rewards and costs from REBS as they are not covered by franchise agreements. We discuss this issue in more detail later in this chapter.

[339] This is because, whilst train operators benefit immediately from cost savings (via REBS), funders and passengers will benefit in the longer term, i.e. from CP6 onwards from Network Rail's lower cost base and hence funding requirement.

arrangements, we would be content to see train operators opting out of REBS to pursue their own commercially negotiated risk and reward sharing agreements with Network Rail, provided such arrangements were transparent and non-discriminatory[340]. Indeed, we do not necessarily expect REBS to be a long-term regulatory mechanism, but see it as a stimulus for a change in the behaviour of Network Rail and the train operators that will become self-sustaining in the longer term.

Outstanding REBS decisions

19.10 We set out our decisions early (in December 2012) to help the industry factor them into its plans and to provide the industry with greater certainty. But this meant that there were some aspects of the incentive mechanism that were still to be decided. We set out our proposals on the following outstanding issues below:

(a) approach to setting REBS baselines;

(b) methodology for calculating and reporting REBS performance in CP5; and

(c) which elements of Network Rail's income and costs will be included in REBS.

Approach to setting REBS baselines

19.11 In December 2012, we wrote to Network Rail setting out our current thinking on setting REBS baselines[341]. We explained that our main aim was to be able to determine how Network Rail is performing in CP5 relative to our PR13 assumptions. We set out the following principles governing REBS baselines:

(a) we are ultimately responsible for approving REBS expenditure baselines;

(b) baselines should be set before the start of the control period and take into account feedback from other industry participants;

(c) the process and principles for setting baselines and calculating REBS performance should be as transparent and simple as possible, i.e. understandable to those who the mechanism intends to incentivise;

[340] Our statement on alliancing, published in March 2012 is available at: http://www.rail-reg.gov.uk/server/show/ConWebDoc.10854.

[341] This letter is available at http://www.rail-reg.gov.uk/pr13/PDF/rebs-letter-171212.pdf.

(d) baselines must be set so that they are consistent with our overall national-level PR13 determinations, i.e. they should deliver our separate determinations for England & Wales and for Scotland;

(e) baselines should clearly reconcile back to our PR13 route-level cost assumptions;

(f) as far as possible, there should be a single definition for outperformance in CP5 (and hence a set of common baselines), i.e. our definition of outperformance for REBS should be consistent with definitions used elsewhere, e.g. in Network Rail's management incentive plan;

(g) it should be possible to reconcile clearly information in Network Rail's regulatory accounts with our national PR13 determinations, REBS route-level baselines and the annual calculations of route-level out/under performance; and

(h) Network Rail will be responsible for calculating and reporting performance – we expect Network Rail to be transparent in undertaking this activity, particularly where it is required to exercise discretion.

19.12 In its response to our letter[342], Network Rail has suggested that it should have flexibility to set the route-level baselines (through the delivery plan), REBS baselines should not be fixed for the entire control period and that REBS should include Schedules 4 & 8 costs and variable usage charge income (to reflect changes in traffic volumes) but exclude property and other income sources.

19.13 We understand Network Rail's view. We have decided that our PR13 final determination cost assumptions for England & Wales and Scotland will act as REBS baselines in CP5. Network Rail will be able to set REBS baselines for the nine England & Wales operating routes, as long as they reconcile in total back to our national England & Wales level determination assumptions. Network Rail will be required to agree route-level REBS baselines for CP5 prior to the start of the control period so that train operators have sufficient time to decide on whether to enter into REBS.

[342] Network Rail's response can be found via the following link: http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784819.

19.14 We can see the rationale for allowing certain changes to REBS baselines. We recognise that adjustments may sometimes need to be made to reflect factors such as the re-profiling of a major cost-saving (or income generating) scheme within the control period. But we do not agree that Network Rail should be allowed to make annual adjustments to the previous year's REBS baseline. This approach will provide certainty for train operators, while allowing Network Rail and train operators to propose and, after having consulted, refine the route-level income and cost assumptions prior to the start of the control period. We propose to hold a workshop on setting the REBS baselines with the industry ahead of final determination.

Methodology for calculating and reporting REBS performance in CP5

19.15 In chapter 23 of this document, we set out how we will measure and report on Network Rail's financial performance in CP5. This issue is closely linked to REBS because the decisions we make in this area are likely to be a significant factor when train operators are considering whether to take part in REBS.

19.16 Chapter 23 explains how our approach to measuring Network Rail's financial performance will focus on a comparison between Network Rail's total financial performance and our PR13 determination income and cost assumptions. We want REBS to be consistent with this wider approach so that our decisions on REBS pay-outs are more transparent and so that they are consistent with our view on Network Rail's total financial performance. By consistency, we do not mean that the measure of performance for REBS will exactly reflect the measure of total financial performance. Instead, our approach will be consistent (e.g. aligning performance measure with the RAB roll forward) for the incomes and costs that are included in REBS.

19.17 Fixed baselines provide certainty for participants in REBS. However, this approach does present risks if Network Rail makes significant changes to spend profiles on certain routes within the control period. To address this issue the REBS baselines will remain fixed for the control period but with any significant changes to Network Rail's income and costs within the control period reflected in annual adjustments to the level of REBS performance.

19.18 In chapter 23, we set out how our measure of total financial performance in CP5 will include adjustments to Network Rail's overspend or underspend against our determination assumptions to better reflect Network Rail's actual performance, e.g.

adjusting for rescheduling of capital schemes. REBS performance will already reflect these changes, and so to maintain a stable mechanism, we expect to only approve adjustments to REBS performance in exceptional circumstances, i.e. we do not anticipate significant regular annual adjustments, over and above those reflected in the measure of total financial performance.

19.19 The only additional adjustments that we will consider making to the measure of REBS performance are where:

(a) Network Rail makes a significant change to its spend profile in a particular route, e.g. Network Rail re-profiles the roll-out of its network operating strategy, where these changes could not have been reasonably known before the baselines were set; or

(b) Network Rail makes material changes to the methodology for allocating costs between operating routes.

19.20 We consider that by allowing these adjustments, we will reduce the potential for windfall gains and losses for train operators.

Specific elements of Network Rail's income and costs that will be included in REBS

19.21 In our December 2012 decisions document, we set out our current thinking on the income and costs that should be included within REBS. We have not changed our view since December 2012.

19.22 We will include within REBS only those elements of Network Rail's costs and incomes that we consider train operators are able to influence. On this basis, REBS will include the following[343]:

(a) support costs;

(b) operations costs;

(c) maintenance costs;

(d) renewals costs[344];

(e) Network Rail's share of RSSB and BTP costs;

[343] While REBS pay-outs will take into account efficiencies achieved in alliances, the calculation of financial performance will include alliance payments before REBS.

[344] Due to the separate treatment of renewals of civil structures in PR13 we will exclude the impact of volume changes of renewals of civil structures in CP5 for financial performance purposes.

(f) Schedule 4 & 8 costs;

(g) property income; and

(h) variable usage charge income[345].

Our indicative REBS baselines are shown in annex D.

Approach to calculation and payment under REBS

19.23 REBS will be implemented via track access contracts and a draft of the contractual mechanism with supporting explanation will be set out in our consultation on 12 July 2013.

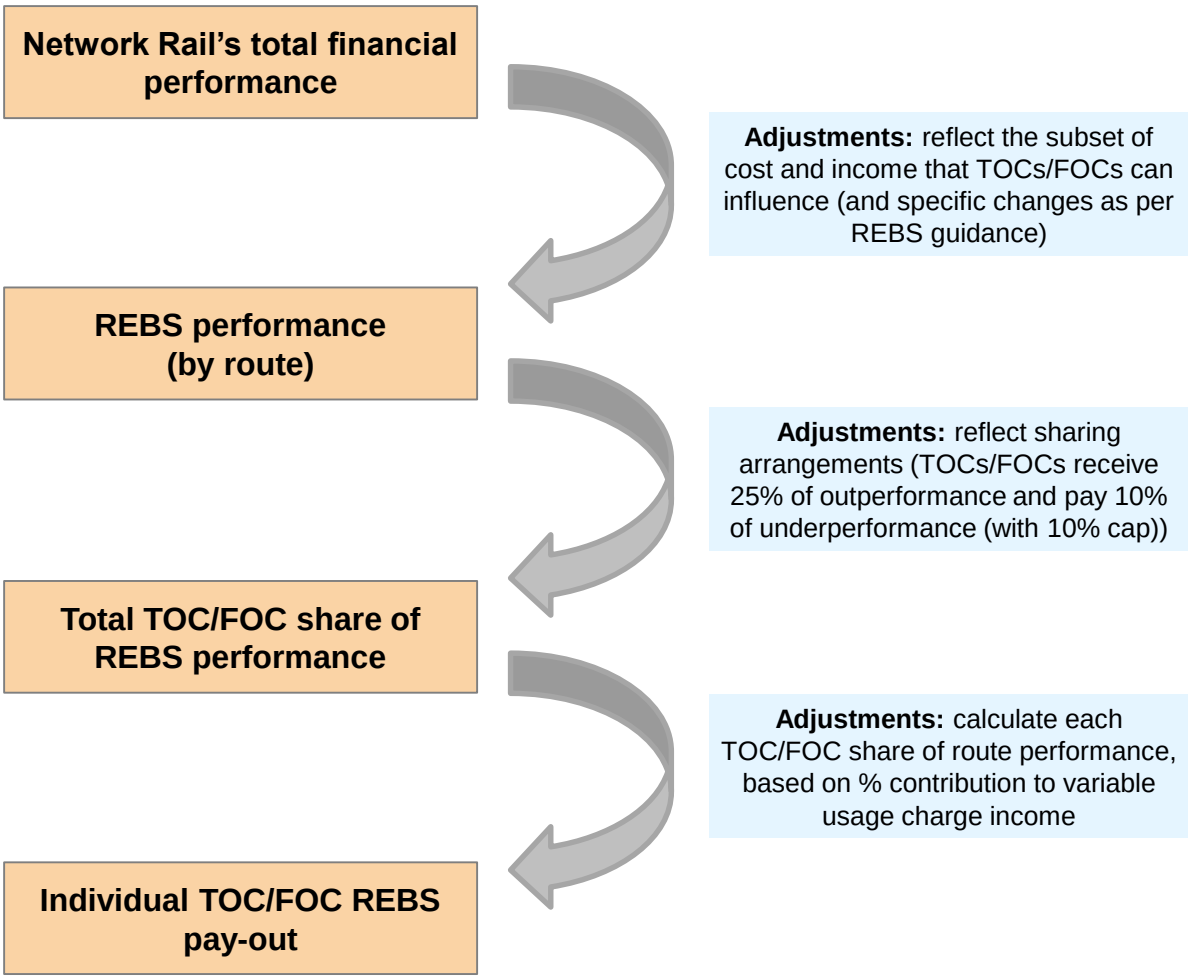
19.24 The value of any EBSM payments is currently set out in our annual efficiency and finance assessment of Network Rail. For REBS to provide a real incentive to train operators, we believe it is important that payments are made on an annual basis and so we will retain this approach in CP5.

19.25 REBS performance will be consistent with our assessment of Network Rail's cumulative outperformance of REBS baselines for the control period up to the point of the assessment. We expect that REBS pay-outs relating to the prior year will be made soon after we have published our annual assessment (usually in the autumn).

19.26 Figure 19.1, shows the steps for calculating REBS pay-outs to train operators.

[345] We have excluded volume incentive income from the measure of REBS performance. The volume incentive is in place to incentivise Network Rail to improve its responsiveness to unexpected demand for network capacity. The benefits of accommodating this extra demand should flow to operators through increased revenue. Given our view that REBS should include costs and income that train operators are able to influence, and to avoid the possible double counting of the benefits of additional access to capacity, we think that it is appropriate to exclude volume incentive income from REBS.

Figure 19.1: Steps to calculating REBS performance and pay-outs



19.27 As with EBSM, any REBS pay-outs will be in cash. This will provide a strong incentive to operators and is administratively straightforward. Train operators will receive REBS pay-outs based on their share of variable usage charge income on each route. This approach has the benefit of capturing an element of the scale of an operator's services as well as the overall impact that services have on Network Rail spending at the margin.

Franchising considerations

19.28 In CP4, the majority of franchised train operators are not eligible to receive pay-outs under EBSM because the governments were unwilling to waive the clause 18.1/schedule 9 (no net loss, no net gain) provisions in existing franchise agreements. However, in CP4, DfT agreed to waive this provision for new franchises.

19.29 Throughout PR13, both governments have been supportive of REBS and we understand that they will both allow new franchises (let through open competition) to enter into REBS, i.e. to retain the potential benefits and costs from the mechanism.

Prior to DfT issuing its revised rail franchise schedule[346], published in March 2013, this would have resulted in a significant number of franchises being eligible for REBS from the start of CP5. However, the revised England & Wales rail franchise timetable includes a number of negotiated Direct Awards with existing franchisees and this has the effect of reducing the number of franchised operators eligible for REBS from the start of CP5[347].

19.30 So, in summary, DfT has said that for new competitively let franchises, the franchise agreement will allow train operators to benefit from REBS but this will not apply to negotiated Direct Awards with existing franchises. Transport Scotland has said it will adopt a similar position for the next ScotRail franchise.

19.31 Although the latest franchise timetable may initially reduce the coverage of REBS (compared to our initial expectation), we think that it is still appropriate to implement REBS at the start of CP5 as this will allow open access operators (passenger and freight) to enter into REBS, as well as those new franchises that are due to start in the first year of CP5[348]. As franchises are re-let in CP5, the coverage of REBS should increase.

Exposing franchised train operators to changes in Network Rail's costs at a periodic review

19.32 In most regulated industries, the customers of the regulated companies have an incentive to engage with a periodic review, challenging the regulated companies' costs (including scope of work and unit costs) to secure lower regulated prices. They do this because they benefit from these lower prices. In rail, franchised train operators currently do not have this incentive because they are held neutral (with some exceptions) through their franchise contracts to changes in Network Rail's access charges as a result of our periodic reviews.

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[346] DfT's revised rail franchised schedule is available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/170565/rail-franchise-schedule.pdf.

[347] DfT has indicated that for existing franchised operators (including those receiving short-term contract extensions) it will require franchisees to opt-out of REBS. This issue does not affect open access operators (passenger and freight) as they do not have the same agreements with governments.

[348] The DfT rail franchise schedule indicates that the following new franchises will start in the first year of CP5: Essex Thameside; Thameslink, Southern and Great Northern; and East Coast.

19.33 To complement our decisions on REBS, in December 2012, we decided that rather than implementing a new regulatory mechanism to address this issue, we will instead ask franchise authorities to provide new franchises with exposure to technical (or cost-reflective) changes in the variable usage charge[349].

19.34 This approach has broadly the same objective as REBS (i.e. to strengthen incentive alignment). But instead of incentivising within control period efficiencies, it encourages train operators to engage with us and Network Rail during the periodic review process to drive down industry costs.

19.35 However, given the proportion of Network Rail's costs that are recovered through the fixed charge, we also explained in December 2012 that we think that exposing franchisees to changes in the fixed charge would generate further efficiency savings by increasing train operators' interest in Network Rail's costs at a periodic review.

19.36 The decision on whether to increase franchised train operator exposure to changes in Network Rail's charges is ultimately for the governments to make. DfT has said that it will consider this for future franchises. However Transport Scotland has confirmed that it does not intend to expose the new ScotRail franchise to changes in access charges.

19.37 We recognise that providing exposure to changes in Network Rail's fixed costs is a significant departure from existing industry arrangements and would expect that any further exposure to Network Rail's costs, i.e. exposure over and above changes in the variable usage charge, would be phased in over more than one control period (i.e. from CP6 onwards).

Enhancements efficiency benefit sharing

19.38 We are proposing to strengthen the incentives for the industry to work together to drive down the costs of infrastructure projects. We want Network Rail and operators to enter into commercial agreements that will reward operators if real cost savings are achieved. We believe this is a powerful tool to enable Network Rail to out-perform the PR13 settlement. It has been used before in CP4, but only for a minority of projects.

[349] This change would only impact new franchised train operators from CP6, i.e. as a result of changes that we may make to Network Rail's track access charges at our next periodic review.

19.39 Network Rail can already enter in to arrangements with train operators who want to fund additional enhancements or share the revenue gains or savings from such investment.

19.40 The commercial agreements would be for Network Rail and operators to agree on a case by case basis. The agreements could be at an individual project level, a route-based level, or a portfolio level. Network Rail would set a baseline project cost and would need to define a corresponding output consistent with the HLOS. The aggregate costs would need to be within the PR13 capped portfolio costs as explained above. This incentive is described in more detail in chapter 9.

Research & development and innovation

19.41 We support research & development (R&D) and innovation. Increased emphasis on R&D and innovation is likely to improve Network Rail's productivity in the long-run. Low levels of R&D and innovation have been identified by several studies as a reason for poor productivity in the rail industry. The Rail Value for Money study identified the potential for significant annual savings from 'safety, standards and innovation' by the final year of CP5. Investment can be risky but returns on investment can be high.

19.42 There are reasons why Network Rail's incentive and ability to invest in R&D and innovation may not be as strong as it could be. For example, Network Rail argues that the gains from innovation are accrued over the long-term while the costs are short-term. The resetting of the price control only allows it to retain the benefits of innovation over a five year period – over which time it may not be compensated fully for the risk of the investment.

19.43 The recognised importance of innovation and R&D led to £50m for cross-industry innovation being included in the Secretary of State's HLOS, which Network Rail will be able to access. Subject to a well justified proposal from the company, we will introduce a matched-funding financial incentive whereby we will make provision in the settlement for each additional pound which Network Rail spends on R&D or innovation to be matched (up to a cap), and consider wider changes to the regulatory framework. The matched funding incentive would apply to every additional pound, beyond that assumed elsewhere in the PR13 determination, which Network Rail commits to spend on R&D or innovation.

19.44 This approach should encourage Network Rail to consider carefully the risks and rewards since the approach involves it committing its own money – sourced through outperformance or through third party funding - thus introducing a form of governance. To minimise the cost of any further governance and provide read-across, we would propose to subject the matched funding to the same governance arrangements as the HLOS funds, which are being discussed currently.

19.45 Network Rail should set out its proposals on matched funding ahead of the final determination and provide its view on how we might best develop the regulatory framework to encourage R&D and innovation. In particular, it should demonstrate:

(a) whether a matched-funding financial incentive would allow Network Rail to attract third party investment such as venture capital or other forms of financing and if not what modifications would be necessary;

(b) how Network Rail would envisage sharing the rewards or benefits of any investment with others such as its supply chain and any third party funders and what it considers these benefits are likely to be; and

(c) how Network Rail would envisage sharing the risks of any investment with others such as its supply chain and whether the scale of these risks can be viewed as a reasonable part of its overall balanced portfolio of risks.

Volume incentive

Overview

19.46 In December 2012, we published our PR13 consultation on the volume incentive[350]. This incentive is intended to encourage Network Rail to be more responsive to unexpected demand for network capacity over and above an agreed growth baseline level. Volume incentive payments of £68m have been credited to Network Rail for the first four years of CP4.

Rationale

19.47 One of Network Rail's functions is the efficient management of existing network capacity. It is important that Network Rail is incentivised to make network capacity available in response to unexpected demand. In a more commercial setting, Network

[350] *Volume incentive consultation*, December 2012, available at http://www.rail-reg.gov.uk/pr13/consultations/volume-incentive.php.

Rail would face such an incentive as a result of having a more commercial set of relationships with its customers – relationships in which the company profited by selling more of what its customers wanted, i.e. the use of network capacity.

19.48 The volume incentive should encourage Network Rail to think about the provision of network capacity to its customers in a more commercial way. This involves making trade-offs when deciding whether to meet unexpected demand.

Our December 2012 consultation on the volume incentive

19.49 Responses to our consultation earlier in PR13 confirmed our view that the volume incentive is not fully effective currently in performing its intended role. Many respondents believed that the volume incentive has not been effective principally because it is neither visible to nor well understood by decision makers within Network Rail. So, in our December 2012 consultation document, we put forward a range of measures to improve the effectiveness of the volume incentive.

19.50 In our consultation, we asked Network Rail to put forward proposals on how it will improve understanding of, and engagement with, the volume incentive at a route level where decisions on capacity are taken, for example by attributing incentive payments to its individual operating routes and so linking it to the decision makers.

19.51 We consulted on a range of changes to the design of the incentive including disaggregating the incentive to an operating route level where decisions on capacity allocation are made, the possible introduction of a downside to make the incentive operational in a greater range of circumstances, and whether we should continue with the existing payment mechanism which defers payment to the next control period.

19.52 Finally we consulted on whether we should continue to use the existing approach to calculating the incentive rates – and what other approaches might exist. And we recalculated the incentive payment rates using broadly the existing approach, but with new evidence[351], and arrived at passenger and freight rates which were significantly higher than those used in the current control period.

[351] See *Volume incentive consultation*, December 2012, for details of new evidence.

Volume incentive proposals

19.53 We received 15 responses to our consultation[352]. At the end of January 2013 we held a small, focused stakeholder workshop to discuss the consultation and to understand better the wider views of the industry on the effectiveness of the incentive. We have considered this stakeholder feedback and carried out quantitative analysis to assemble an evidence base to inform and support our approach. We have also drawn on discussions at external meetings with Network Rail, DfT and Transport Scotland.

19.54 Our approach is summarised below, then described in more detail:

(a) **overall effectiveness:** Network Rail has committed to a range of measures to strengthening the transmission mechanism in CP5;

(b) **disaggregation:** the incentive will be calculated relative to disaggregated route level growth baselines while maintaining national incentive rates;

(c) **downside:** we will introduce a downside with symmetric payment rates around expected growth baselines. We will introduce a national ceiling and floor on total payments over the control period;

(d) **payment mechanism:** we will continue to allow accrual of payment for release over the next control period, but amounts will be calculated and credited to the routes on an annual basis;

(e) **other design issues**: we will continue to allow for all growth, to apply the incentive to all routes and to exclude commodities that are subject to mark-ups such as the freight specific charge and the freight only line charge (data allowing);

(f) **baselines:** we will set a total national growth baseline for each of the metrics and work with Network Rail to translate these into annual route baselines ahead of the start of the next control period;

(g) **metrics:** we will continue with all four existing metrics of farebox and passenger train miles for passenger volumes and freight train miles and freight gross tonne miles for freight volumes; and

[352] Consultation responses are published on our website at http://www.rail-reg.gov.uk/pr13/consultations/volume-incentive.php.

(h) **incentive rates:** we will continue with the existing approach to calculating incentive rates and adopt the updated version of these incentive rates included in our December 2012 consultation.

Overall effectiveness

19.55 Almost all respondents to the December consultation were supportive of the need for a volume incentive, at least in the short term. But there was a clear message that the incentive has not been properly effective to date and that it needs to be improved going forwards. While respondents were broadly supportive that we are considering the 'right' design areas to improve its effectiveness, particularly disaggregation, there was the sense that something else is needed to improve the transmission mechanism and the way in which Network Rail thinks about, and acts on, the volume incentive internally.

19.56 Getting the transmission mechanism right is a matter for Network Rail. In April 2013, we wrote to Network Rail asking it to identify and commit to changes by building on the ideas in its response to the December 2012 consultation. Network Rail responded to us in April 2013 suggesting a combination of approaches outlined below. In its letter, Network Rail stated that it plans to consult on its proposals once ORR has concluded on the volume incentive policy for CP5. Network Rail proposed that:

(a) volume incentive payments will be included in the Financial Value Added (FVA) measure, a measure of Network Rail's outperformance. Under the current staff incentive arrangements, this will have an impact on the level of payments to senior Network Rail staff;

(b) the payments to senior route-based staff will also be affected through inclusion of the routes' performance against traffic targets in routes' FVA. Senior staff working centrally would be affected by the sum of the routes' performance against the national volume incentive baselines;

(c) baseline and outturn traffic figures will be published at a route level in Network Rail's annual regulatory accounts; and

(d) where there is overall outperformance against the volume incentive baseline, Network Rail will make decisions centrally about how to use any gains but routes would make proposals about ways of spending outperformance, which would be judged against 'payback' criteria. Network Rail will also work with passenger and

freight operators through existing processes and report on how it spends any outperformance in its regulatory accounts.

Disaggregation

19.57 Most respondents supported disaggregating the incentive as this could potentially increase visibility and effectiveness. Among passenger operators and their representatives (including ATOC), there was broad support for disaggregating the growth baselines to a route level with a national incentive rate. A few respondents felt that the disaggregation should be at a more granular level, or include disaggregation of the incentive rates, to better account for the variation in the social value of rail by region. Freight operators (and freight customer representatives) expressed concerns about disaggregation. Respondents felt it would add unnecessary complexity as most freight flows do not map neatly onto Network Rail's operating routes. DfT and Network Rail were broadly supportive of disaggregation, with Transport Scotland also favouring disaggregation below the route level. A majority of respondents did not support an alternative form of disaggregation e.g. by TOC.

19.58 Growth baselines will be disaggregated but we will maintain national incentive rates. Disaggregated route level data on passenger train miles, freight train miles and freight gross tonne miles exists already. Disaggregated route level farebox data does not exist but we are working to create these baselines. We consider that this approach is consistent with the majority of stakeholder feedback and could increase effectiveness of the incentive by improving visibility and targeting route based decision makers. The approach could also allow us to gain valuable knowledge/ data to inform future work on the charging framework. Going further and disaggregating incentive rates is unlikely to result in more appropriate incentive rates being applied to particular volume increases, as we would expect rates to vary more within routes than between them.

Downside

19.59 Most respondents to the December consultation were in favour of a downside to the volume incentive and many made statements supporting our principles for having a downside (e.g. keeping the incentive effective at all times, mitigating incentives to reduce volume). Some respondents who were less supportive of the volume incentive as a whole also expressed doubts about a downside. The Rail Freight Group suggested that the downside will be difficult to implement and may be perverse or counter intuitive. Network Rail "recognise ORR's arguments in considering introducing

a downside" but proposed that in order to manage risk, a downside should be capped at the national level. Several respondents expressed concerns around Network Rail being exposed to risks outside its control, especially for freight volumes, and there was support for a floor on payments.

19.60 We will introduce a downside for CP5, with symmetric incentive rates so that the same rates apply to both the upside and the downside. We consider that, on balance, a downside will improve the effectiveness of the incentive by removing the uncertainty over whether the volume incentive will apply to a specific increase in volume, since currently it works only if volumes are above the baseline. Symmetric rates eliminate any uncertainty over which rates might apply to a given increase in volume. The downside should mitigate Network Rail's incentive to reduce volume under pressure from the performance regime, keep the incentive working when volumes fall below the baseline (e.g. in recessions) and strengthen the incentive for Network Rail to proactively expand capacity. A downside will interact with disaggregation by allowing netting off of payments from routes that are below the baseline from those that are above the baseline.[353]

19.61 We will introduce both a ceiling and a floor on payments under the volume incentive. The floor will cap downside payments from Network Rail. The ceiling will cap upside payments from governments. While we did not consult explicitly on a floor and ceiling in our December document, a floor is supported by several consultation responses, mainly to mitigate risk to Network Rail particularly amid concerns that the downside exposes Network Rail to risks beyond its control. And we consider the ceiling to be an important feature of the incentive since we propose to introduce higher incentive rates but our statutory duties require us to take into consideration government finances and affordability.

19.62 We propose to introduce a floor of -£300m and a ceiling of +£300m for CP5. The levels of the floor and ceiling are based on analysis of possible payment scenarios under different assumptions on background growth in passenger and freight demand and the timing of the delivery of major capacity based enhancements. The floor and

[353] Under the CP4 incentive design, the volume incentive payment is calculated at the national level and so volumes below the baseline level on one route could be offset by those above the baseline on another route. If in CP5 disaggregation was introduced without a downside, for many patterns of volume increases the payment would be higher than in CP4, because volumes below the baseline for some routes would not be offset by volumes above the baseline for other routes.

ceiling are intended to balance the risk of the incentive becoming inactive (achieved by setting the levels of the floor and ceiling so that they are relatively unlikely to become binding), against affordability concerns for both governments and Network Rail. We have illustrated this in the penultimate section of this chapter.

19.63 The baseline will reflect expected growth, and it is our intention currently that this is based on Network Rail's traffic model and DfT farebox projections. Setting the baseline at expected growth, with symmetric incentive rates, gives the incentive an expected value of zero. A baseline set below expected growth might require a corresponding adjustment to fixed charges for a positive expected value of the volume incentive. This adjustment would avoid Network Rail receiving a volume incentive payment for volumes that it was expected to deliver and for which it had been paid already. An expected growth baseline means that positive and negative volume incentive payments are easily interpreted, which might contribute towards improving the transmission mechanism.

Payment mechanism

19.64 At present, the volume incentive is calculated annually, but paid over the subsequent control period through the opex memorandum account, with regard to affordability. Most respondents to our December consultation, including Network Rail, supported the continuation of payments through the opex memorandum account. They did not think that the deferral of payment affects incentives or if it does, that this is a secondary issue, and that it is the transmission mechanism which is the most important driver of effectiveness. And both Transport Scotland and DfT stated clearly that the timing of payment to Network Rail will affect affordability for funders. But nearly all respondents supported the annual calculation and crediting of incentive payment amounts to the individual routes.

19.65 We will continue with the existing payment mechanism, with volume incentive amounts accrued in the opex memorandum account and paid over the subsequent control period, profiled according to affordability. Most respondents are supportive of the existing mechanism, or have little appetite for change. Deferred payments are more likely to be affordable for funders and allow for netting off of underperformance, and a more immediate payment mechanism may not be practical and appropriate. However, Network Rail will calculate and credit the amounts to its routes on an annual

basis. These amounts will be used to inform the reward package for route level managers.

Other design issues

19.66 Most respondents opposed crediting the volume incentive only in congested areas of the network, mainly because of difficulties with the definition and measurement of congestion. The majority of respondents said that Network Rail should be credited for all volume growth, some because of the need to incentivise Network Rail to accommodate all volume, whatever its cause, and some because of the practical problems in distinguishing what Network Rail had caused.

19.67 We consulted on excluding ESI coal and spent nuclear fuel. When coal was excluded in PR08 it was argued that coal was 'captive' to rail and did not need an incentive for that reason. Network Rail supported that as did Freightliner (with some concerns about Scottish coal) and RfG (who wanted to ensure biomass attracted the volume incentive). Arriva supported it but not if there were data problems at the route level. DB Schenker, Transport Scotland, Centro and PTEG did not support the exclusion or did not see the point of it.

19.68 We propose to continue to apply the incentive to all routes since congestion may not necessarily be correlated with high value volume and we expect that it will be difficult to measure. We propose to continue to include all growth regardless of who has driven that growth. Our rationale is that all volume is valuable and separating Network Rail-caused volume is both difficult and could set the wrong target. We propose to continue to exclude commodities that are subject to mark-ups (data allowing) such as the freight specific charge and the freight only line charge. Our rationale is that these mark-ups provide an incentive for volume that does not need duplicating.

Metrics

19.69 In their responses to the December 2012 consultation, Network Rail and some freight operators commented that for freight, more weight should be put on the gross tonne miles measure, in order to incentivise more efficient traffic growth. In our January 2013 workshop the Rail Freight Operators' Association said that all the measures should in fact relate to better use of available capacity rather than encouraging more capacity. Centro argued that a metric which focuses on train miles

is likely to incentivise long-distance services (passenger or freight) rather than short-distance passenger commuter services.

19.70 We propose to continue with all four existing metrics. We have considered the consultation responses and discussed the availability and potential vulnerabilities of the existing metrics with Network Rail and DfT (who hold farebox data). Train miles metrics are not entirely satisfactory because they could encourage empty trains and longer distance volumes, and growth in farebox could reflect developments outside Network Rail's control such as changes to wider government policy. However, loss of either the train miles or farebox metrics without a satisfactory substitution could reduce the effectiveness of the incentive since the broad scope represents a range of different values. In recognition of these concerns we will allow for the re-opening of the farebox baseline in control period if it is clear that it will be affected by a change in fares policy, and we are confident that we can isolate that effect.

Baselines

19.71 In the workshop and in its response to the consultation, Network Rail suggested that ORR should set a national growth baseline, and then it, in consultation with operators, would set route level growth baselines. In its consultation response, Network Rail also argued that by continuing to apportion growth over a control period equally between the five years, the baseline is likely to be unachievable in the early years of CP5. This is because growth is not forecast to be uniform over CP5, but concentrated in the final years of the control period when a number of capacity driving enhancements e.g. Thameslink, Crossrail are due to be completed.

19.72 We will specify an expected national growth baseline for each metric in our final determination. We recognise that the delivery of a number of capacity enhancing projects in CP5, which are due to complete towards the end of the control period, increases the importance of considering whether, for example, the growth forecasts included in Network Rail's current traffic forecasting model remain an accurate representation of expected growth. Therefore, we will work closely with Network Rail to ensure that the baselines are as accurate as possible. It is important that the baselines continue to reflect expected growth and that they are not in any way 'softened' to mitigate the risk of the downside – which is a risk that we will deal with through introducing a floor on the downside payment.

19.73 Draft national growth baselines for passenger train miles, freight train miles and freight tonne miles are shown in Table 19.1 below, based on the extract from Network Rail's traffic forecasting model included in its SBP and expressed as average annual growth over CP5. The growth rates for the freight metrics are for chargeable traffic. A draft national growth baseline for farebox, based on the DfT Network Modelling Framework, is also shown in this table[354]. In the table, we have shown these draft baselines next to the CP4 projections. As well as considering the timing and effect of capacity improving enhancements, we will need to update these draft baselines to reflect expected freight volume growth forecasts currently being consulted on as part of the Freight Market Study[355].

Table 19.1: Draft national baseline growth rates

Average annual growth rates	Draft CP5 projection	CP4 projection
Passenger train miles	1.3%	0.8%
Farebox	3.6% (real)	4.7% (real)
Freight train miles	5.5%	2.3%
Freight 1,000 gross tonne miles	6.0%	1.6%

19.74 We will work with Network Rail to translate expected national growth forecasts into annual route-level baselines ahead of the start of CP5. ORR understands that Network Rail intends to consult on route level baselines when it publishes its draft delivery plan in December 2013. Baselines must be set before the beginning of CP5 and adjustments to route level baselines must be neutral in aggregate relative to the expected national growth baselines specified by us in the final determination. We will agree the principles for disaggregation with Network Rail in advance of its delivery plan consultation, and review the proposed route-level baselines before these are put in place for the beginning of CP5.

[354] The DfT Network Modelling Framework is a strategic modelling tool which can provide, among other things, high level demand and revenue forecasts.

[355] The Freight Market Study consultation – published on Network Rail's website - see http://www.networkrail.co.uk/improvements/planning-policies-and-plans/long-term-planning-process/market-studies/freight/ - is part of the rail industry's Long Term Planning Process and sets out how freight demand is expected to change over the next 30 years.

Incentive rates

19.75 A majority of consultees supported the retention of the current value-based approach to calculating the incentive rates. A majority of respondents commented that regardless of the size of the payment, the transmission mechanism is the key factor in ensuring that the incentive is effective. Some respondents suggested that there would be merit in moving to a cost based approach for the volume incentive, but recognised that it seems unlikely that this could be implemented in a robust way at this time. Network Rail expressed support for strengthening the incentive by increasing the incentive rates. Freightliner commented that in the case of freight, in addition to the size of the incentive rates, setting a realistic baseline is also a key factor in ensuring the incentive is effective.

19.76 We will continue with the existing method of calculating incentive rates and adopt the updated version of those rates included in the December consultation and shown in Table 19.2[356]. Most respondents are supportive of this approach and there appears to be little interest in the 'higher rate alternative' which we also consulted on in December at least until there is full confidence in the effectiveness of the transmission mechanism. The higher rate alternative would also be of concern to funders since it could raise affordability issues.

19.77 We have considered whether the incentive rates should be revisited in the light of our decision not to change capacity charge rates as described in chapter 16. This decision means that Network Rail will not be fully compensated for the costs to it of additional performance payments resulting from increased traffic and so provides a disincentive to volume increases. Even higher volume incentive rates could offset this disincentive, as the volume incentive is intended to strengthen the incentive for Network Rail to accommodate additional volumes. However, our decision on incentive rates and payment caps reflects a balance between strengthening the incentive and considering affordability concerns for governments and Network Rail, as described below. An increase in incentive rates without a corresponding change in payment caps would significantly increase the risk of the incentive becoming inactive, whereas an increase in caps would increase affordability concerns. To maintain this balance of

[356] These rates have been updated for RPI inflation compared with those published in the December consultation.

effectiveness and affordability, we do not intend to increase the incentive rates for this purpose.

Table 19.2: Incentive rates

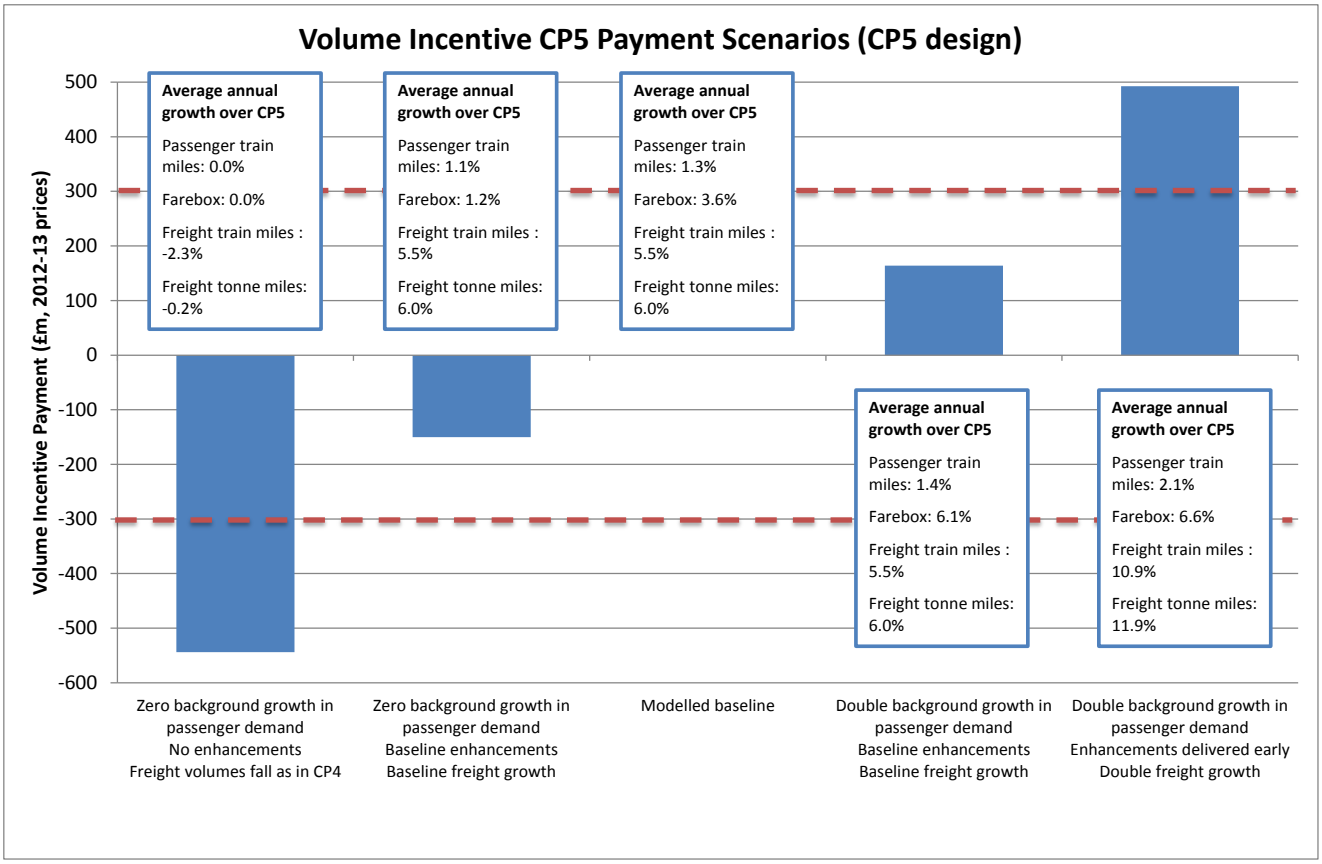
	Refreshed CP5 value (2012-13 prices)	CP4 value (2006-07 prices)	CP4 value (2012-13 prices)
Per additional train mile	141p	69p	84p
% of additional farebox revenue	2.5%	1.5%	1.5%
Per additional freight train mile	284p	111p	136p
Per additional freight 1,000 gross tonne mile	242p	100p	122p

Payment scenarios, caps and payment rates

19.78 Figure 19.2 below shows how a ceiling and floor set at +/- £300m would mitigate the risk around the magnitude of payments should traffic growth be significantly above or below the growth baselines set before the start of CP5 using existing draft baselines. The scenarios reflect different assumptions on passenger and freight demand and on the timing of the delivery of major capacity improving enhancements. We have not associated specific probabilities with these illustrative scenarios, although we consider the more extreme scenarios to be relatively unlikely to occur.

19.79 The level of the floor and ceiling is intended to balance the risk of the incentive becoming inactive (achieved by setting the levels of the floor and ceilings so that they are relatively unlikely to becoming binding), with affordability concerns for both governments and Network Rail. While the modelled scenarios have informed our proposal of a ceiling and floor of +/- £300m, the ceiling and floor put in place must also be considered in light of other aspects of the PR13 settlement. For example, our decision on the cap on the level of the variable usage charge means that if Network Rail was to deliver volumes below the baseline, since the variable usage charge is to be set below the level of cost directly incurred, it would effectively over-recover, offsetting some of the potential downside experienced through the volume incentive.

Figure 19.2: Volume incentive CP5 Payment Scenarios



Views on proposals

19.80 We would welcome views on our detailed approach to the volume incentive in CP5 as set out in paragraphs 19.46-19.79 above. We would particularly welcome views on our proposed approach to working with Network Rail to set expected route-level growth baselines and to mitigating risk to Network Rail and governments by setting a national ceiling and floor on payments under the volume incentive of +/- £300m over the whole of CP5.

20. Possessions and performance regimes

Key messages in this chapter

- The Schedule 4 ('possessions') regime compensates train operators for the financial impact of planned possessions – where operators cannot access the network because Network Rail is carrying out engineering work. The Schedule 8 ('performance') regime compensates train operators for unplanned service disruptions caused by Network Rail and other train operators.
- **We are retaining Schedules 4 and 8 so they mainly operate as 'liquidated sums' regimes**, where compensation (and bonus) payments are largely determined in advance by set formula. This reduces transactions costs in the industry, because the alternative would be to negotiate the financial impact of each incident after the incident;
- **We have updated Schedule 4 and 8 payment rates so they reflect the best available evidence** of the impact of possessions and poor performance on revenue and costs. We are still finalising payment rates. This is due to the timings of an industry led update of the evidence on how passenger demand responds to poor performance and some concerns Network Rail has raised regarding the methodology for calculating Schedule 8 payment rates for London & South East commuter services, which it recently consulted on. Passenger Schedule 8 payment rates, and to a lesser extent Schedule 4 payment rates, are expected to increase considerably. This is due to large increases in passenger numbers, above inflation increases in fares on some services and updated evidence showing passenger demand responds more to service disruption than previously thought. The increase in Schedule 4 payment rates will result in an increase in Network Rail's funding requirement, most of which will be reflected in an increase in the Schedule 4 access charge supplement paid by train operators. The increase in Schedule 8 payment rates will not result in an increase in Network Rail's funding requirement, since Schedule 8 is financially neutral when Network Rail and train operators perform in line with our expectations.

Key messages in this chapter (continued)

- The increase in Schedule 4 and 8 payment rates will **increase the financial incentive on Network Rail to minimise planned and unplanned service disruption to passengers** and also ensure train operators are adequately compensated. This is because Network Rail will have to pay a higher amount of compensation for each minute of lateness it causes;
- **We are updating performance benchmarks in Schedule 8**, including ensuring Network Rail's performance benchmarks reflect the output targets we set for CP5.
- We have improved other aspects of Schedules 4 and 8 to make sure they function effectively, do not result in perverse incentives, and work overall in the best interests of passengers, freight customers and taxpayers. This includes incentivising Network Rail to reduce instances of booking unnecessary possessions early and then cancelling them at short notice; and reducing compensation to cover replacement bus costs so it is in line with actual bus costs.

Introduction

20.1 Passenger train operators are concerned about the performance of their services because of the adverse impact on their customers of poor reliability, which over time leads to lower passenger numbers and revenues. Freight operators are concerned about the performance of their services because of the costs incurred, e.g. additional crewing costs, and because of the impact on revenue through the loss of customers.

20.2 The possessions and performance regimes (Schedules 4 and 8) in track access contracts perform the following functions:

(a) compensate train operators for the financial impact of planned and unplanned service disruption attributable to Network Rail and other train operators;

(b) help align incentives between Network Rail and train operators, so the impact of service disruption on revenue and/ or costs is incurred by the organisation to whom the disruption is attributable, rather than the train operator that faces the disruption; and

(c) provide appropriate signals so as to drive the decision-making in relation to performance and possession management, for example, in relation to where to make investments, or to give an indication to Network Rail on whether it is better

to have a short possession but with higher engineering costs or take a longer possession.

20.3 In their role as compensation mechanisms, Schedules 4 and 8 ensure that train operators are less exposed to risk that they cannot control than they would otherwise be. In the case of franchised passenger train operators, this helps reduce the risk premiums factored into franchise bids. This ultimately feeds through to taxpayers through lower franchise costs, and passengers through downward pressure on fares.

20.4 Exposing Network Rail to the impact of its possessions management and performance on long term fare revenue means it is more likely to be incentivised to act in the interests of passengers, for example, by investing in improving the performance of services that more passengers use.

20.5 Schedules 4 and 8 are liquidated sums regimes, which means that compensation payment rates are determined in advance using a set formula, rather than negotiated individually once an event has occurred. This is a common feature of contracts and is a way of minimising legal and administrative costs.

Current compensation arrangements

Schedule 8

20.6 Schedule 8 provides train operators with compensation for unplanned service disruption caused by Network Rail and other train operators. Schedule 8 is one of a range of factors that encourage Network Rail and train operators to continuously improve performance.

20.7 Track access contracts for franchised passenger, open access passenger, freight and charter operators all contain a Schedule 8.

20.8 Our view is that, overall, Schedule 8 works well. For CP5 we will therefore not be making any major alterations to the structure of the regime, but we will be making changes to some of the metrics to ensure they remain appropriate and that Schedule 8 continues to work effectively in CP5.

Schedule 8 for franchised and open access passenger operators

20.9 The regimes for franchised and open access passenger operators are very similar. They are both benchmarked regimes, where payments are made when Network Rail's

or a train operator's performance diverges from a benchmark[357] number of minutes of lateness.

20.10 There are separate benchmarks and payment rates for Network Rail and train operators. These are unique to each train operator's service groups (collections of train services).

20.11 The Network Rail payment rate sets the basis for compensation payments from Network Rail to train operators when Network Rail's performance is worse than benchmark, and bonus payments to Network Rail from train operators when Network Rail's performance is better than benchmark. It is set at a level to reflect the impact over time of performance on fare revenue. Schedule 8 is not designed to compensate passengers for poor performance. Instead this type of compensation is available to passengers through schemes such as delay repay[358], which is required under the majority of franchise agreements.

20.12 Likewise, the train operator payment rate represents the level of compensation a train operator is liable to pay to Network Rail in relation to disruption caused to third party train operators as a result of the train operator's performance being worse than the train operator benchmark. Under what is commonly referred to as the 'star model', all liabilities between operators flow through Network Rail. Network Rail pays a bonus to a train operator (payable at the same rate as compensation) if the train operator's performance is better than benchmark. Train operator payment rates are based on an estimate of the extent to which the performance of a train operator impacts on the services of other train operators, along with the impact of performance on revenue over time for those services disrupted.

20.13 Poor performance is measured in terms of lateness experienced by passengers. Specifically it is measured as the average minutes of lateness per day between the

[357] Benchmarks are known as 'performance points' in track access contracts.

[358] Under the delay repay scheme, all passengers, including holders of season tickets are entitled to claim compensation for each delay over a certain length of time, for example, 30 minutes, an hour, two hours, whatever the cause. Compensation is up to 100% of the single fare, or 100% of the return fare, depending on the length of the delay. The entitlement for season ticket holders is calculated using the proportional daily cost of the season ticket.

timetabled time at particular stations[359] and the actual time a train arrives at those particular points.

20.14 The share of responsibility for lateness is attributed between Network Rail and train operators using the TRUST delay attribution system. This identifies the causes of delays to services, i.e. the time lost between points where delay is reported[360].

20.15 For the purposes of Schedule 8, cancellations are treated as a specific number of minutes of 'deemed' lateness. This varies between service groups and reflects the frequency of services, i.e. how long passengers will have to wait for the next train, and the fact that subsequent trains become more crowded and less pleasant to travel on when cancellations occur.

20.16 Benchmarks and train operator payment rates were last updated (other than for inflation) as part of PR08. Network Rail payment rates were last updated in our 2005 review of Schedule 8[361].

20.17 Schedule 8 for franchised and open access passenger operators is designed to be financially neutral (i.e. net payments are zero) when Network Rail and train operators are performing in line with expectations[362].

20.18 Currently train operators may claim additional compensation from Network Rail for sustained poor performance, if performance is worse than a defined threshold over time, provided they can demonstrate the liquidated sums element of Schedule 8 is not providing adequate compensation.

Schedule 8 for freight operators

20.19 The freight Schedule 8 performance regime was comprehensively reviewed and updated in PR08, with the creation of a standardised regime across all freight operators so as to remove any competitive advantage to particular operators, for

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[359] These stations are known as monitoring points.

[360] The primary purpose of the TRUST system is to help ensure the industry is able to fix the underlying problems that cause delays so performance can improve over time. Rather than collect separate data for Schedule 8 to attribute lateness, Schedule 8 relies on data already collected for the TRUST system.

[361] http://www.rail-reg.gov.uk/server/show/nav.177

[362] Network Rail has made net Schedule 8 payments to train operators during CP4. This is largely due to Network Rail performing below expectations (the net payment is also affected to a lesser extent by train operator performance). In 2011-12, Network Rail made a net Schedule 8 payment of £80m (2011-12 prices).

example through having a different payment rate to other operators running a similar service. The regime was also simplified considerably.

20.20 The nature of the standardised freight Schedule 8 is that benchmarks and payment rates are common across all freight operators. We are of the view the standardised regime works well and this view is shared by the majority of stakeholders.

20.21 Freight Schedule 8 benchmarks are based on minutes of delay per 100 miles, rather than average minutes of lateness, used in Schedule 8 for passenger operators. Because they are normalised for distance operated, the freight Schedule 8 benchmarks are suitable for all sizes of operator.

20.22 Most of the freight Schedule 8 is designed to be financially neutral at benchmark performance. However, there is no benchmark for cancellations. Instead freight operators receive compensation for all cancellations caused by Network Rail or other train operators. Network Rail receives funding to cover the expected number of cancellations for the control period.

20.23 Certain elements of the freight Schedule 8 are designed to reduce the exposure of freight operators to financial risk. These are:

(a) an option available to each freight operator to pay an access charge supplement (ACS) for a cap on the amount it is required to pay in relation to a single incident; and

(b) reciprocal caps on the maximum annual Schedule 8 liability freight operators and Network Rail can face in relation to a particular track access contract. These are usually agreed by Network Rail and freight operators, and approved by us.

Schedule 8 for charter operators

20.24 There is a different Schedule 8 arrangement for charter operators to reflect the fact that charter services (generally trains used for leisure purposes) do not carry passengers at ordinary fares and the revenue implications of disruption are complex.

20.25 Like freight, the Schedule 8 regime for charter operators is also a standardised regime. Payment rates are common across all charter operators, and the Network Rail payment rate is the same as the Network Rail payment rate for freight operators.

20.26 There are currently no Schedule 8 benchmarks within the charter operator regime. Charter operators make compensation payments in respect of all delays they cause to

other operators of 3 or more minutes; Network Rail compensates charter operators for all delays of 3 or more minutes caused by Network Rail or other operators. For CP5, we plan to introduce benchmarks into Schedule 8 for charter operators to bring it in line with the passenger and freight Schedule 8 regimes. More detail on this is provided on paragraphs 20.145-20.146 below.

20.27 Incident caps limit the amount of compensation per incident paid by charter operators to Network Rail under the Schedule 8 regime to £5,524. The same incident cap applies to compensation paid by Network Rail to charter operators, although this has rarely been employed in practice. Charter operators do not currently pay an ACS in exchange for the benefit of incident caps.

Schedule 4 possessions regime

20.28 The Schedule 4 possessions regime is designed to compensate train operators for the financial impact of planned possessions where operators are given restricted access to the network, principally as a result of Network Rail undertaking engineering work.

20.29 The possession regimes for passenger and freight operators are different. Both regimes were significantly overhauled as part of PR08. The key features of each are explained below. There is no Schedule 4 regime for charter operators.

Schedule 4 for franchised passenger operators

20.30 This compensates franchised passenger operators for service disruption due to planned possessions. In return for this compensation passenger operators pay a pre-determined ACS to cover the estimated efficient cost to Network Rail of the Schedule 4 regime. This reflects the fact that Network Rail is expected to require a certain number of possessions and can be seen as analogous to the performance benchmark in Schedule 8.

20.31 Compensation payments are paid by Network Rail to franchised passenger operators on a formulaic basis. Schedule 4 payments are to compensate for a combination of the following:

(a) the effect of possessions on fare revenue;

(b) additional costs incurred when running replacement buses; and

(c) costs or cost savings from a change in train mileage.

20.32 We are not making major changes to the regime as part of this periodic review, but there are a number of aspects we have reviewed in order to improve the incentives for Network Rail to plan possessions effectively and efficiently and to reduce the impact of possession disruption on passengers. The main issues where we are proposing changes are in relation to replacement bus cost compensation and the level of compensation payable to operators where Network Rail makes late cancellation of or amendments to Type 1 possessions.

The effect of possessions on fare revenue

20.33 Network Rail compensates franchised passenger operators for revenue losses as a result of passengers being deterred from travelling due to possessions disruption. Compensation is based on Schedule 8 payment rates. Network Rail is entitled to reduce the amount of compensation it pays, depending on how early it notifies passenger operators about possessions. The discount reflects the reduced impact on train operators' revenues where passengers receive early notice of service disruption[363]. The amount of discount is determined by notification discount factors which vary according to the amount of notification given to passenger operators, and the type of service that is being disrupted.

Additional costs incurred when running replacement buses

20.34 Franchised passenger operators can claim compensation for the costs of running replacement bus services when train services are cancelled due to disruption caused by possessions. Compensation is determined by formula; the amount of compensation received is the product of estimated bus miles (EBMs), which is the distance in miles between transfer points (e.g. between stations), and the EBM payment rate which is paid in £ per EBM operated. EBM rates are paid at two rates, one for London & South East services and one for services operating in the rest of the country.

Costs or cost savings resulting from a change in train mileage

20.35 Franchised passenger operators may make cost savings or incur additional costs as a result of changes in train mileage operated due to possessions, depending on the

[363] While with earlier notice of possessions passengers may be more likely to make alternative travel arrangements, they are less likely to be put off from travelling by train in the future if amended timetables do not take them by surprise.

actual pattern of cancellations or diversions. The costs or savings are determined by a payment rate per train mile, as set out in track access contracts.

Schedule 4 for open access passenger operators

20.36 Open access passenger operators may opt to pay an ACS if they want to receive full formulaic Schedule 4 compensation, consistent with that available to franchised passenger operators. Currently no passenger open access operators do this, and therefore they only receive compensation for very long possessions[364] or sustained disruption.

Schedule 4 for freight operators

20.37 The Schedule 4 freight regime is structured so that there are three levels of compensation depending on the degree of disruption (with the possibility of compensation for actual losses for severe disruption) and higher payments made for late notice possessions. Freight operators do not pay an ACS to cover the expected costs of Schedule 4 compensation, and as a result only receive compensation for significant planned disruption notified before T-12[365].

Our determination

20.38 We set out below the changes we are making to Schedules 4 and 8. Some of these changes are updates to the metrics of the regimes, such as payment rates and benchmarks, as a result of new evidence. Others are policy changes, such as the introduction of compensation to passenger train operators for late notice cancellations of possessions.

20.39 In particular we are improving the compensation and incentive properties of Schedules 4 and 8 to improve outcomes for passengers, end-users and taxpayers. We are doing this by:

(a) updating Schedule 4 and 8 payment rates so they reflect the best available evidence of the impact of possessions and poor performance on long term revenue and costs;

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[364] These possessions are classified as Type 2 and Type 3 possessions, defined as: type 2 possessions: single possession greater than 60 hours, but equal to or less than 120 hours, (excluding public holidays) type 3 possessions: single possession greater than 120 hours (including public holidays).

[365] T-12 refers to twelve weeks before a new timetable comes into operation.

(b) updating performance benchmarks in the Schedule 8 regime, including ensuring Network Rail's performance benchmarks reflect the output targets we set for CP5; and

(c) improving other aspects of Schedules 4 and 8 to make sure they function effectively, do not result in perverse incentives, and work overall in the best interests of passengers, freight customers and taxpayers.

20.40 Some of the work relating to Schedule 8 payment rates and benchmarks is still on-going. In these instances we outline the progress we have made so far and our planned next steps.

20.41 In reaching our proposed decisions we have:

(a) consulted on Schedules 4 and 8 at a high level in our May 2011 document and December 2011 consultation on incentives;

(b) consulted specifically on Schedules 4 and 8 in our November 2012 consultation on the possession and performance regimes;

(c) set up industry groups in relation to the passenger and freight Schedules 4 and 8, which have provided technical advice and helped inform policy proposals; and

(d) commissioned external work to help inform our decisions and determine payment rates and benchmarks.

Schedule 4 and 8 compensation in relation to full impact of disruption

20.42 As part of PR13, we considered whether train operators should continue to be fully compensated for the impact of service disruption on their revenue and costs, as they are currently.

20.43 The intention of setting payment rates at a level that would not fully compensate train operators for planned and unplanned service disruption would be to help encourage train operators to work with Network Rail to improve performance and minimise the number and impact of possessions. Potential ways train operators could work more closely with Network Rail to minimise service disruption include greater effort from train operators in delay recovery from Network Rail incidents, and better possession planning with greater train operator involvement in ensuring disruption to passengers is minimised.

20.44 However, we were mindful that a disadvantage of capping Network Rail payment rates below 100% is that such an approach would weaken the financial incentive for Network Rail to reduce disruption to services by reducing the amount that the company would pay to train operators for poor performance or disruption. We commissioned Steer Davies Gleave (SDG) to carry out research to establish whether it is appropriate to set payment rates to below 100% of the financial impact of disruption, including whether the economic benefits of doing so would outweigh the costs.

20.45 We have decided to set Schedule 4 and 8 payment rates so that they continue to compensate train operators for the full financial impact of service disruption due to Network Rail and other operators, where this is currently the case[366]. This is for the following reasons:

(a) SDG reported that interviews with, and quantitative analysis it carried out using evidence from, train operators suggested that setting Schedule 4 and/or Schedule 8 rates to 25% below full compensation would be unlikely to change behaviour;

(b) setting Schedule 4 and 8 rates at 25% below full compensation was estimated by SDG to significantly increase the risk premium factor in franchise bids and result in additional costs for freight operators from being exposed to risks from Network Rail's performance that the operators are unable to control;

(c) Schedule 4 and 8 payments incorporated within the REBS mechanism, as we propose will be the case in CP5 (see chapter 19), are more likely to result in constructive engagement between Network Rail and train operators in the interests of passengers and taxpayers; and

(d) rates that compensate train operators for the full financial impact of service disruption were supported by all parties who responded to our consultation (including Network Rail, passenger and freight operators).

20.46 We also considered the effectiveness of Schedules 4 and 8 during extreme disruption, such as severe weather, including a proposal from Network Rail to introduce a 'Joint

[366] Elements of Schedules 4 and 8 that require funding, such as the freight Schedule 4 and payments for Network Rail cancellations under the freight Schedule 8, do not necessarily provide full compensation.

Restrictions of Use' concept into Schedule 4, where under particular 'trigger' scenarios Network Rail and train operators could agree a joint Restriction of Use. In these scenarios Network Rail would pay a lower amount of compensation and would not pay compensation in relation to estimated bus mileage where the use of buses is also not possible, due to the same adverse weather conditions. The aim of this would be to prevent situations where neither party is able to run a full timetable, but neither party wishes to be the first to declare this, in order to avoid incurring Schedule 4 costs, or avoiding Schedule 4 compensation payments.

20.47 We will not be incorporating Network Rail's proposed joint Restrictions of Use concept into Schedule 4 of our model track access contracts. Our view is that in most parts of the network the current wording of Schedules 4 and 8 is not preventing Network Rail and train operators from working together in the interests of passengers during extreme disruption, and that in any localised circumstances where the current contractual wording is not felt to work well, it would be more effective for Network Rail and train operators to propose bespoke arrangements to us.

20.48 The other changes we are proposing relate specifically to Schedule 4 or 8. We set these out below.

Schedule 8 performance regime

Passenger performance regime

20.49 The Schedule 8 performance regime for passenger operators was last updated as part of PR08, but there are elements, such as Schedule 8 payment rates, that were last reviewed in our 2005 performance review.

20.50 As part of PR13, ORR and Network Rail commissioned Halcrow to update Schedule 8 payment rates and benchmarks so they reflect the most up to date evidence. An element of this work includes Halcrow engaging with train operators and Network Rail to validate its calculations.

20.51 We set out below the changes we have determined in relation to the Schedule 8 passenger performance regime.

Network Rail benchmark

20.52 Since Schedule 8 is intended to be financially neutral in aggregate, benchmarks should therefore be set at a level that is challenging but realistically achievable, and consistent with the performance levels Network Rail is funded to achieve.

20.53 We are updating the Network Rail benchmarks to take account of:

(a) actual performance between the beginning of April 2010 and the end of March 2012 (the recalibration period);

(b) committed performance by Network Rail to train operators between the end of the above period and 1st April 2014, contained in the Join Performance Improvement Plans (JPIP)s; and

(c) performance trajectories for CP5. These are to ensure the CP5 benchmarks reflect a level of performance which Network Rail can deliver in respect of each train operator, while at the same meeting the performance targets we have set at an aggregate level.

20.54 The recalibration period was chosen on the basis of the following:

(a) it is desirable to use the most recent data as possible as this better reflects the current network characteristics and service patterns;

(b) it is desirable to use time periods that relate to Network Rail's financial years so improvement trajectories can be applied to Network Rail's benchmarks in a way that is simple and transparent;

(c) year-on-year fluctuations in performance due to external factors such as those related to the weather can have a significant impact on benchmarks. A two year period helps minimise the impact of these fluctuations while still ensuring the data is relatively recent; and

(d) due to the high volume of data required for the update of benchmarks, it would be costly to use data from a longer time period than necessary.

20.55 In August 2013, we will publish a report from Halcrow outlining its methodology for the update of Schedule 8 benchmarks. Halcrow will also provide to Network Rail the supporting data and models to aid with future operator specific re-calibrations, for example, in the event of a major timetable change.

20.56 Network Rail will then propose Schedule 8 benchmarks for each year of CP5 based on **committed performance between the end of the recalibration period and the 1 April 2014,** and **performance trajectories for CP5**, by train operator.

20.57 There will then be an opportunity for train operators to scrutinise the Network Rail benchmarks relating to their service groups, before our final approval. As part of our process for approving the final Network Rail benchmarks, we will make sure they are consistent with the aggregate performance targets we set for CP5 in chapter 3.

20.58 Network Rail recently consulted on the principles it will apply when calculating Schedule 8 benchmarks for each year of CP5[367]. It is working on a revised proposal in light of the consultation responses. We will make a final decision on the principles Network Rail should follow in July 2013.

20.59 Table 20.1 contains a high level timetable for the remainder of this process. The timings reflect the fact that Network Rail needs to have seen the output targets we set in this draft determination before it can carry out a large part of the work to calculate Schedule 8 benchmarks for each year of CP5.

Table 20.1: High level process for finalising Schedule 8 benchmarks

Date	Activity
July 2013	ORR confirms Schedule 8 benchmark principles
May – July 2013	Network Rail routes develop train operator level PPM trajectories, which are consistent with our draft determination
June 2013 - August 2013	Network Rail carries out the technical work to enable it to convert train operator-level PPM trajectories into Schedule 8 benchmarks
August 2013	Network Rail consults on CP5 Schedule 8 benchmarks, which are consistent with our draft determination
September 2013	Network Rail submits proposed Schedule 8 benchmarks to ORR
31 October 2013	We finalise Schedule 8 benchmarks, as part of our final determination

[367] http://www.networkrail.co.uk/publications/delivery-plans/control-period-5/periodic-review-2013/pr13-closed-consultations/.

Network Rail payment rate

20.60 As discussed above, the Network Rail payment rate is designed to reflect the impact of performance on a train operator's long term revenue. It is composed of the estimated average marginal revenue effect (MRE) per passenger journey within a service group multiplied by the number of passenger journeys per day in that service group. The MRE represents the impact of a minute's lateness on fare revenue over time.

20.61 The MRE calculation is based on the following:

(a) estimating the amount of revenue at stake in each service group, using ticket sales data from LENNON[368] and other data sources such as those relating to multi-modal ticketing systems, during a one year period running from April 2011 to the end of March 2012[369]; and

(b) combining this with the best available estimates from the Passenger Demand Forecasting Handbook (PDFH) on:

(i) how passenger demand responds to percentage changes in journey time (GJT[370] elasticities); and

(ii) how much passengers value lateness compared to scheduled journey time (late time multiplier).

20.62 The PDFH is the recognised industry guidance on forecasting the impact of various factors on the demand for passenger services. It has recently been updated. The bulk of this work was commissioned by the Passenger Demand Forecasting Council, with ORR and Network Rail making a contribution towards the update of late time multipliers. The work was overseen by the Passenger Demand Forecasting Executive steering group, members of which include train operators, Network Rail, ATOC, DfT

[368] LENNON is the rail industry's central ticketing system, operated by ATOC. It includes information on national rail tickets purchased in Great Britain.

[369] Unlike the recalibration period for benchmarks, this is a one year period. This is because, while revenue is influenced by performance, it tends not to fluctuate as much because the impact is not immediate. Also, given the impact of performance on revenue is not immediate, performance in 2011-12 is likely to have been influenced by both of the years used for the recalibration of benchmarks. We therefore did not consider it cost effective to use revenue data from a two year period for the update of payment rates.

[370] Generalised journey time.

and ORR. DfT has not yet taken a view on the new PDFH guidance and will be conducting a thorough review of the updated evidence in the PDFH to help it decide whether to include it in its transport appraisal guidance (WebTAG). This review will not be completed in time for us to factor it into our final determination.

20.63 On the basis of the process followed and our involvement in it, our opinion is that the updated PDFH parameters are more robust than the previous ones. To ensure Schedule 8 is based on the best and most up to date available evidence, except where we have a clear rationale for doing otherwise, we will calculate the final CP5 Schedule 8 payment rates so they are based on the GJT elasticities and late time multipliers that feature in the updated edition of the PDFH.

20.64 Schedule 8 Network Rail payment rates feed into several calculations, such as the Schedule 4 ACS and the capacity charge. In order to provide draft Network Rail payment rates on time for the draft determination and draft capacity charge price lists, we commissioned Halcrow to calculate draft Schedule 8 payment rates based on the most recent draft GJT elasticities and late time multipliers proposed for inclusion in the updated PDFH. Details on our decision in relation to the capacity charge are contained in chapter 16 on access charges.

20.65 Since these calculations were carried out, PDFH values have been finalised but with a minor adjustment to the late time multiplier for London & South East commuter passengers, to 2.5 instead of 3.0 or 3.9 (depending on journey length). For this reason calculations based on draft Schedule 8 payment rates, for example, the Schedule 4 ACS, are likely to be higher in some instances than when they are recalculated using the final Schedule 8 payment rates.

20.66 In addition to this, Network Rail has recently raised concerns regarding the established methodology used to convert revenue, GJT elasticities and late time multipliers into Schedule 8 payment rates for London & South East commuter services. It argues that the established approach results in Schedule 8 rates that are much higher than the actual impact of performance on revenue and suggests this could be due in part to:

(a) capacity constraints, such as crowding suppressing demand growth, even on well-performing services; and

(b) the amount of time it takes for changes in punctuality to result in changes in demand for this type of service.

20.67 As a result, Network Rail consulted with the industry outlining these concerns and has proposed an alternative approach. This could further reduce the final Schedule 8 payment rates, depending on the outcome of Network Rail's consultation.

20.68 We fully endorse Network Rail's consultation and we see it as an important step in ensuring that the Schedule 8 payment rates we set for CP5 reflect as closely as possible the impact of poor performance on fare revenue over time.

20.69 Network Rail is currently reviewing responses to its consultation. We will make a final judgement on the methodology to be used and reflect this in our calculation of final Schedule 8 payment rates.

20.70 We have also given Network Rail and train operators the opportunity to agree alternative Network Rail payment rates in instances where they are both of the view that the default methodology is likely to result in Schedule 8 payment rates that are not a realistic reflection of the impact of performance on revenue for a particular service group. Any such proposals should be submitted to us by 17 July 2013 and will be subject to our approval. Our final date for approving local revisions to Schedule 8 payment rates will be 7 August 2013. At this point all the Schedule 8 Network Rail payment rates will be final.

20.71 Table 20.2 contains a high level timetable of the process for finalising Schedule 8 payment rate calculations.

Table 20.2: High level timetable of the process for finalising Schedule 8 payment rate calculations

Activity	Date
Network Rail launches consultation, outlining its concerns and its view on the inputs that should be used to calculate Schedule 8 payment rates for London & South East commuter services	15 May 2013
Network Rail's consultation closes	11 June 2013
Network Rail concludes on consultation	26 June 2013
We decide on inputs that should be used in calculating the Schedule 8 payment rates	10 July 2013

Activity	Date
Deadline for Network Rail and train operators to jointly propose local revisions to Schedule 8 payment rates	17 July 2013
Halcrow calculations of Schedule 8 payment rates complete	31 July 2013
We approve local revisions to Schedule 8 payment rates. After this point all Schedule 8 Network Rail payment rates will be final	7 August 2013

20.72 In general, Schedule 8 payment rates will increase considerably, due to:

(a) increases in passenger numbers, meaning there is more fare revenue at stake;

(b) updates to the PDFH evidence on how passenger demand responds to increases in journey time; and

(c) above inflation increases in fares on some services.

20.73 This increase will help strengthen the incentives on Network Rail to improve its performance and prioritise its investments where there is the most passenger revenue at stake. Setting Schedule 8 payment rates at the right level will also have the benefit of ensuring train operators receive appropriate compensation for disruption to their services caused by Network Rail and third parties. This should reduce the risk train operators are exposed to that they cannot control, which should ultimately reduce the risk premiums factored into future franchise bids.

Train operator benchmark

20.74 Train operator benchmarks should also be set at a challenging but realistically achievable level. For CP5, we are updating train operator benchmarks to reflect actual performance between the beginning of April 2010 and the end of March 2012, as part of the Schedule 8 recalibration work we and Network Rail have commissioned from Halcrow.

20.75 The performance of franchised train operators is regulated by the franchising authorities[371]. We are of the view that train operators already face significant financial incentives to perform well through franchise agreements and exposure to fare revenue. We will not be setting performance trajectories for train operators in

[371] DfT and Transport Scotland. Similarly, Merseytravel and TfL regulate the performance of those train operators with whom they have a concession agreement (which is similar to a franchise agreement).

Schedule 8 as we are not of the view this would materially enhance the incentives which the train operators already face, i.e. train operator benchmarks will be set on the basis of performance during the two year recalibration period.

Train operator payment rate

20.76 Although the train operator payment rate reflects the impact of the performance of a train operator on other train operators, payments between train operators are channelled through Network Rail in order to reduce the overall number of transactions.

20.77 The work we and Network Rail have commissioned from Halcrow to update train operator payment rates reflects the following:

(a) the updated Network Rail payment rates, as these reflect the best available evidence of the impact of performance on long term revenue; and

(b) the latest pattern of impacts of each train operator's performance on other train operators (where much more detailed data is now available than in PR08).

20.78 In our November 2012 consultation we consulted on a number of policy issues, relating to Schedule 8. Our decisions in relation to these issues are set out below.

Additional compensation for sustained poor performance

20.79 Under Schedule 8, additional compensation may be claimed when Network Rail's performance in relation to a specific train operator's services is worse than the Sustained Poor Performance (SPP) threshold, providing the train operator can show that it has not been adequately compensated through the liquidated sums element of Schedule 8. Our intention is that the SPP threshold should enable additional compensation to be claimed for sustained poor performance where compensation under the standard Schedule 8 arrangements is likely to be materially less than what is needed to reflect the actual impact of poor performance on the train operator.

20.80 The SPP threshold was established in our 2005 passenger performance regime review. Table 20.3 shows what levels the SPP threshold has been set at since it was introduced:

Table 20.3: SPP thresholds in previous years

Year	SPP threshold
2006-07	25% worse than benchmark performance over at least 12 months
2007-08	22.5% worse than benchmark performance over at least 12 months
2008-09	20% worse than benchmark performance over at least 12 months
2009-14	10% worse than benchmark performance over at least 12 months

20.81 In our November 2012 consultation we stated that we consider train operators should be protected from the financial impacts of sustained poor performance by Network Rail; and that we are also of the view that a key strength of Schedule 8 is its liquidated sums nature, which is simpler and less costly to administer than a bespoke claims process. We proposed that we should increase the SPP threshold, and asked for suggestions from consultees on the level at which we should set it.

20.82 We received a mixed response from stakeholders. Network Rail was strongly in favour of increasing the SPP threshold, and commissioned some research from Steer Davies Gleave (SDG), which it submitted as part of its consultation response, which recommended it should be set at 30%. ATOC and train operators argued strongly that the 10% threshold remains appropriate.

20.83 We have decided to continue to set the SPP threshold at 10% of the Schedule 8 benchmark for CP5, on the basis that the small number of claims made in CP4 does not indicate that in practice an SPP threshold of 10% is undermining the liquidated sums nature of Schedule 8. Given the legal and administrative costs to a train operator of making a claim, we anticipate that SPP claims are in general only made when losses incurred are materially greater than the formulaic Schedule 8 compensation received.

20.84 The analysis presented by SDG suggests that even if Network Rail were performing at its benchmarks on average during 2011-12, an estimated 47% to 68% of train operators would be eligible to claim additional compensation for SPP[372]. With the SPP

[372] These two estimates are based on analysis that assumes that (i) performance in 2011/12 was better by fixed percentage across service groups or (ii) the SPP threshold is set at an average performance over the previous two years, respectively. The former assumes variability of performance between train

threshold set at 30% which the SDG analysis recommends, an estimated 5% of train operators would be eligible to claim additional compensation for SPP. This analysis assumes continuation of the current variability In Network Rail's performance, either across train operators, or in relation to a specific train operator over time.

20.85 While at face value the evidence presented by Steer Davies Gleave suggests that the 10% threshold might be too low, we are not convinced that the evidence presented by the Steer Davies Gleave work provides a compelling enough case on its own for the SPP threshold to be increased. At a time when Network Rail has continued to not meet its performance targets, we are of the view we would be sending the wrong message to Network Rail if we were to increase the SPP threshold.

20.86 Given the low number of claims during CP4 despite Network Rail not meeting its performance targets, and the fact the CP5 Schedule 8 payment rates will be based on the best available up to date evidence on the impact of performance on revenue, we do not anticipate that setting the threshold at 10% will result in a large number of claims if Network Rail performs at benchmark in aggregate. But at the same time, maintaining the 10% threshold will ensure the option remains available to train operators to claim additional compensation in the event relevant losses are not adequately compensated for by the liquidated sums element of Schedule 8.

Compensation for Passenger Charter payments

20.87 Currently a small number of train operators opt to pay an ACS in order to receive compensation to cover season ticket discounts to passengers in accordance with Passenger Charter regimes within their franchise agreements. Net payments within the Passenger Charter element of Schedule 8 are now very small and for the first three years of CP4, Network Rail has received significantly more in ACS for Passenger Charter compensation than it has paid out under Schedule 8.

20.88 This element of Schedule 8 is not operating as it originally intended, nor is it cost effective to update the payment rates relating to make it function more effectively. We therefore will remove this element of Schedule 8.

20.89 Despite the imbalance in payments it is possible that some of the train operators that opt into the Passenger Charter element of Schedule 8 view it as catastrophe

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operators remains the same. The latter assumes fluctuations of Network Rail's performance over time in relation to specific train operators remain the same.

insurance to protect them if there are significant declines in Network Rail's performance. Those passenger operators would be free to agree bespoke arrangements with Network Rail as part of their track access contracts, subject to approval by us, or seek insurance from the private market.

Other issues

20.90 There are some other issues we consulted on in November 2012 in relation to which we will not be making changes. These are as follows:

(a) **whether to introduce a time delay on Schedule 8 payments.** Ideally Schedule 8 payments should reflect the impact of performance on train operators' revenues over the long term. However, Schedule 8 payments are made within 35 days of the preceding four-week period. After reviewing the evidence we are not of the view the benefits of introducing a time delay on Schedule 8 payments are material enough to justify the additional complexity and administrative burden it would result in. This view is reflected in the responses we received from stakeholders;

(b) **whether paragraph 17 of Schedule 8 should be amended to reduce the number of circumstances in which train operators may request changes in payment rates**. Paragraph 17 of Schedule 8 allows Network Rail or train operators to propose changes to metrics in Appendix 1 of Schedule 8, such as payment rates and benchmarks, mid-control period. Network Rail has proposed that the use of paragraph 17 of Schedule 8 to change Network Rail payment rates should be restricted to situations where there are major timetable changes. We will not be introducing this restriction. Our view is that there could be legitimate reasons for Network Rail or train operators to propose changes to Appendix 1 mid-control period, other than a timetable change, including those that are not foreseeable during PR13; and

(c) **treatment of cancellations by train operators to their own trains.** Currently the way in which the definitions and formulae in Schedule 8 work means that when a train operator cancels one of its own trains, it has an impact on its Schedule 8 payments even when it does not cause delay to the services of other train operators. We consulted on whether it would be worth changing this element of Schedule 8, when weighed against the costs of doing so. Responses from stakeholders suggest it is a small issue that is not having any particular

impact on behaviour and that a change is unlikely to justify its cost. We therefore do not propose introducing a change for CP5. However, we recommend that at the next substantive update of Network Rail's PEARS system, which translates delay attribution data into Schedule 8 payments, Network Rail considers the merits of including within PEARS the capability of allowing a change to be made to the treatment of cancellations by train operators to their own trains.

20.91 There are also a few minor drafting improvements that have been identified by stakeholders. We will include these in the revised drafting of the template track access contracts, on which we will consult on 12 July 2013.

Freight performance regime

Network Rail benchmark

20.92 As with the passenger Schedule 8, we will be setting the Network Rail benchmark at a level that is challenging but realistically achievable and consistent with the performance levels for which Network Rail is funded.

20.93 During CP4 both the regulated target for Network Rail freight performance and the benchmark in the freight performance regime were based on delay minutes per distance operated. Hence they were very closely correlated. In our November 2012 consultation we said we would set the benchmark to reflect the performance targets we set for Network Rail in CP5. Since producing that document, we have decided that the Network Rail performance target in relation to freight services will be expressed in terms of the new Freight Delivery Metric (FDM) which measures the percentage of freight trains arriving at their destination within 15 minutes of scheduled time. It only covers delay or cancellation caused by Network Rail. Further detail on the FDM is contained in chapter 3.

20.94 We do not consider that it would be robust to determine the Network Rail benchmark on the basis of this target, given it is based on an entirely new metric and differs slightly in purpose from the previous delay minute target. It conflates cancellations with delay, whereas cancellations are treated separately in the performance regime. Overall we expect Network Rail to perform throughout CP5 at a level equal to the delay minute target of 2.94 delay minutes per 100 train km we set for the final year of CP4. This matches the internal route level delay minute target Network Rail referred to in its SBP.

20.95 Network Rail has argued that the methodology that we applied to produce the CP4 Network Rail benchmark for the new standardised regime did not take into account the fact that the delay minute target set for CP4 was based on delays caused by Network Rail captured in TRUST, and that this does not correspond exactly to the way Network Rail delay is defined when calculating Schedule 8 payments. Network Rail has proposed an adjustment to reflect this.

20.96 In order to ensure the Network Rail benchmark is consistent with the target for the final year of CP4 of 2.94 delay minutes per 100 train km, we have factored the following into our calculation of the draft Network Rail benchmark:

(a) delay caused by other train operators, which is classified as Network Rail delay under Schedule 8 (this was also factored into the Network Rail benchmark calculation for CP4);

(b) delay agreed to be caused by Network Rail as part of the Post Day 8 resolution process[373], but which is still shown as freight operator-caused in TRUST due to it not being agreed until after the TRUST data is finalised (as per Network Rail's proposal);

(c) delay agreed to be Network Rail-caused due to commercial agreements, for example in relation to delay attribution when there is leaf fall, but recorded as freight operator-caused in TRUST (as per Network Rail's proposal); and

(d) delay agreed as service variation minutes[374] under the Management of Freight Services During Disruption (MFSDD) process[375]. During CP4 an increasing proportion of delays to freight services have been classified as service variation minutes and therefore not captured in TRUST, when they previously would have been. The adjustment we apply to the CP5 benchmark should reflect the

[373] It is only possible to make detailed changes to individual records within the TRUST system up to 8 days after an incident. However there will be some incidents, such as where detailed investigation is needed into its cause, e.g. an electrification dewirement, where the final responsibility is not established until after this point. In addition there may be a negotiated agreement to split delay minutes in a particular way on days when there has been severe disruption due to seasonal factors.

[374] A service variation is when a service is re-scheduled at very short notice at the request of Network Rail.

[375] When an incident is in progress and likely to continue, freight trains that have timetable slots through the area may be given new schedules that reflect diversion or being held back in the interests of avoiding wider disruption, for example, if there are limited opportunities to regulate trains into loops along the way.

categories of delay captured by TRUST during the period on which our PR08 calculation of the end of CP4 delay minute target was based. Our adjustment therefore reflects service variation minutes in 2006/07 as a proportion of Network Rail caused delay in 2006/07, as this falls within the time period that the CP4 delay minute target was based on[376]. This differs from Network Rail's proposed adjustment which was for the adjustment to be based on service variation minutes during 2011-12. Our view is that Network Rail's proposal would result in a benchmark that is inconsistent with the delay minute target for the final year of CP4.

20.97 On the basis of information provided by Network Rail we have calculated the draft CP5 Schedule 8 Network Rail benchmark to be 6.91 minutes of delay per 100 freight operator miles[377]. We will be discussing the detail of this calculation further with industry through the freight Schedules 4 and 8 industry group, and will also be reviewing the data Network Rail has provided to ensure its accuracy.

20.98 Without taking into account this difference in definition of Network Rail caused delay in TRUST and freight Schedule 8 in our setting of the Network Rail benchmark, Network Rail would be expected to make a net payment to freight operators each year. We estimate that Network Rail would have required an average of £3m per year funding to cover the cost of this.

Network Rail payment rate

20.99 The Network Rail payment rate is the basis for compensation paid to freight operators or bonuses paid to Network Rail, when it performs below or above benchmark respectively. The payment rate should reflect the average financial impact to a freight operator of each minute of delay to a freight train attributable to Network Rail, and is the same for all freight operators.

20.100 Initial analysis that we have carried out based on previous ORR research[378] (consulted on as part of the 2010 review of access policy) suggests that the payment

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[376] Known then as 'hidden delay'

[377] Freight Schedule 8 benchmarks are in miles, whereas our delay minute targets are in km.

[378] *Rail Freight User Values of Time & Reliability: Final Report,* AECOM and University of Leeds Institute for Transport Studies, available from http://webarchive.nationalarchives.gov.uk/20111108204718/http:/www.rail-reg.gov.uk/server/show/nav.2254

rate may currently over-compensate freight operators for delays to their services caused by Network Rail. However, there is uncertainty over the robustness of the some of the evidence in the analysis, and consequently resulting estimates for the payment rate cover a wide range of £3.00 to £25.00 (2012-13 prices). The current payment rate is towards the upper end of this range. Our research estimates that costs to freight operators as a result of one minute of delay make up £3.00 to £4.20 of the total range, with the remainder due to revenue effects. Given this range the new evidence does not help us reach a specific payment rate and is not judged significantly stronger than evidence provided previously by freight operators as the basis for the current rate.

20.101 Therefore we have decided to keep the Network Rail payment rate the same but uplift it for inflation. The Network Rail payment rate will be £19.13 per minute (2012-13 prices). The Network Rail payment rate will be uplifted for inflation in each year of CP5, as has been the case for CP4.

20.102 Given the uncertainty around the correct payment rate to use, we propose re-examining the evidence base with the freight industry and Network Rail early in CP5 in order to develop a more transparent, evidence based payment rate for CP6.

20.103 Freight operators have also suggested that the Network Rail payment rate should be uplifted using the level of tonne miles on the network. We have not followed this approach as it is not clear doing so would adjust accurately for the size of impact of delays on the long term revenue of freight operators, evidence for which is sparse.

Network Rail cancellation payments

20.104 Network Rail cancellation payments compensate freight operators for the financial impact of each freight train cancellation attributable to Network Rail. If cancellations exceed a threshold representing the historic normal number of cancellations, a higher cancellation payment applies. We will continue to set this cancellation threshold at 0.41% of services scheduled. Unlike the Network Rail payment rate, cancellation payments are not part of the benchmarked regime. In CP4, Network Rail was funded for this part of the regime and it will continue to be funded for this aspect in CP5.

20.105 Our previous research used to establish an appropriate freight Schedule 8 Network Rail payment rate also provided limited evidence regarding an appropriate level for Network Rail cancellation payments. Further empirical work would be required to

determine cancellation payments that fully reflect cost and revenue impacts on operators due to freight train cancellations attributable to Network Rail.

20.106 For CP5, the Network Rail cancellation payment rates will remain the same but uplifted for inflation. In 2012-13 prices the below threshold cancellation payment will be £1,813 and the above threshold cancellation payment will be £4,835. These cancellation payments imply a Network Rail funding requirement of £20.1m in CP5 (in 2012-13 prices). This is shown in Table 22.4.

Table 20.4: Our determination of Network Rail's funding requirement to cover the expected costs of Network Rail cancellation payments to freight operators

£m 2012-13 prices	CP4	CP5					CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain	3.6	3.8	3.9	4.0	4.2	4.3	20.1
England & Wales	3.3	3.4	3.5	3.7	3.8	3.9	18.3
Scotland	0.3	0.3	0.4	0.4	0.4	0.4	1.8

Note: Numbers may not reconcile due to rounding.

Freight operator benchmark

20.107 As with the Network Rail benchmark we have set the freight operator benchmark at a challenging but realistically achievable level. Our calculation of the draft freight operator benchmark is 2.37 minutes of delay per 100 freight operator miles for the beginning of CP5. This is based on actual delay caused by freight operators to third parties during a two year recalibration period from the beginning of April 2010 to the end of March 2012, adjusted for traffic growth[379]. The recalibration period is consistent with that used to update passenger train operator benchmarks. Our reasons for choosing this period are outlined in paragraph 20.54.

20.108 In response to our November 2012 consultation, freight operators have argued that we should set the freight operator benchmark at the same level as in CP4 to encourage and reward long term investment.

[379] Actual traffic growth to 2012-13, forecast traffic growth from this point to the beginning of CP5.

20.109 While we acknowledge that ORR updating the freight Schedule 8 benchmark every five years could have some dampening effect on the returns larger freight companies receive on investments to improve performance, we have decided to set the benchmark based on performance during CP4 for the following reasons:

(a) it is consistent with our approach for updating franchised and open access passenger operator Schedule 8 benchmarks;

(b) it ensures this element of Schedule 8 remains financially neutral, providing freight operators continue to perform at the level they did during the two year calibration period. If we were to set the freight Schedule 8 benchmark at the same level it was set for the first year of CP4, but adjusted for traffic growth, we estimate that Network Rail would require an average of £7.3m additional funding per year to cover the expected level Schedule 8 bonus payments to freight operators; and

(c) Schedule 8 payments are not the only driver of investment by freight operators to improve performance and freight operators are still able to benefit from Schedule 8 payments arising from improvements they make to their performance between when the improvement is made and when it is reflected in the next update of the freight operator benchmark.

20.110 Our view is that updating the freight operator benchmark every five years at periodic review achieves the right balance between maintaining the financial neutrality of the delay minute element of the freight Schedule 8 and incentivising investment to improve performance.

Adjustment to reflect congestion on network

20.111 During CP4, if overall traffic growth on the network was above (or if traffic reduction was below) 2.5%, an adjustment was made to the freight operator benchmark.

20.112 The formula adjusting the freight operator benchmark when the materiality threshold is exceeded is as follows:

Adjusted freight operator benchmark = Current train operator benchmark x [(Traffic growth x congestion factor) + 1]

20.113 We have used this formula to adjust average delay caused by freight operators to third parties per 100 miles during the recalibration period to the freight operator benchmark for the beginning of CP5, which reflects traffic growth.

20.114 The congestion factor is designed to represent the increased extent to which freight operator delay to their own trains will result in delay to third party trains, when there is increased traffic on the network. During CP4 it was set at 1.5, which is a standard assumption often used in economic analysis relating to networks.

20.115 For CP5, we will be making two changes:

(a) updating the congestion factor to reflect work carried out by Arup on the actual impact of traffic growth on delay minutes caused by freight operators to third parties, as part of the update of the capacity charge. The industry has been given the opportunity to comment on Arup's work through the industry group. Arup's recommendation for the congestion factor is 1.044. The calculation of this relies to a large extent on the work Arup has done as part of Network Rail's work to recalibrate the capacity charge. We will review this between now and the final determination, so the congestion factor of 1.044 and, as a result, our calculation of the freight operator benchmark, should be considered as draft; and

(b) requiring Network Rail to update the freight operator benchmark every year to reflect changes in traffic levels, rather than only if a 2.5% threshold is crossed. This is something which has been suggested at the freight Schedules 4 and 8 industry group. It is a relatively straightforward calculation, and since the process of reviewing the traffic levels to determine whether the benchmark needs changing takes place each year anyway, we view it as more appropriate to update the benchmark each year instead.

20.116 If we had used the previous, assumption based, congestion factor of 1.5 to adjust the freight benchmark to reflect traffic growth, the freight operator benchmark would have been 2.41 instead of 2.37 delay minutes to third party operators per 100 miles. Since we are of the view the congestion factor of 1.044 is the most appropriate to use, we estimate that using a congestion factor of 1.5 would result in Network Rail requiring an average of £800k per year funding to cover the cost of expected bonus payments to freight operators.

Freight operator payment rate

20.117 The purpose of the freight operator payment rate is to reflect the average impact of a minute of delay caused by a freight operator to another train operator. The draft CP5 freight operator payment rate for CP5 is £51.98 (in 2012-13 prices) per minute of

delay to third party trains which is attributable to the freight operator. This is an increase from the current payment rate of £37.10 and represents an approximate 40% real terms increase in the CP4 payment rate. The increase has been driven by large increases in the Network Rail payment rates in the passenger Schedule 8, which have been partially offset by an improvement in the methodology Network Rail used in its calculation. The final freight operator payment rate for CP5 is likely to change when the passenger Schedule 8 payment rates are finalised, see paragraphs 20.60 to 20.73 for more information.

20.118 Network Rail calculated the draft freight operator payment rate by weighting the Network Rail £ per delay minute payment rates in each service group[380] by **third party freight operator delay** affecting each service group. In PR08, the freight operator payment rate was calculated using Network Rail £ per delay minute payment rates weighted by delays caused by **Network Rail and all third party train operators**. This change in methodology for CP5 therefore represents a major improvement, with the freight operator payment rate being a much better representation of the actual average financial impact on third party train operators of delays caused by **freight operators**.

Summary of CP5 benchmarks and payment rates

20.119 Table 20.5 summarises the CP5 benchmarks and payment rates. All payment rates are in 2012-13 prices.

[380] Payment rates under the Schedule 8 performance regime are based on weighted average lateness across a service group, but can be converted into £/ delay minute for the purposes of this calculation

Table 20.5: Summary of CP5 benchmarks and payment rates

	CP4	CP5	Reason for change
Network Rail benchmark	6.39 minutes delay per 100 freight operator miles, in 2013-14	6.91 minutes delay per 100 freight operator miles	Adjustment to ensure consistency with end of CP4 delay minute target
Freight operator benchmark	3.05 minutes delay per 100 freight operator miles, in 2012-13	2.37 minutes delay per 100 freight operator miles	Recalibration of freight operator benchmark to reflect delay per 100 miles caused by freight operators in 2010-11 and 2011-12, with adjustment for traffic growth
Network Rail payment rate	£19.13 per minute of delay to services which are attributable to Network Rail	£19.13 per minute of delay to services which are attributable to Network Rail	No change
Network Rail cancellation payment rate	£1,813 for each cancellation below cancellation threshold and £4,835 for each cancellation equal to or above threshold	£1,813 for each cancellation below cancellation threshold and £4,835 for each cancellation equal to or above threshold	No change
Cancellation threshold	0.41% of total number of services operated by freight operator	0.41% of total number of services operated by freight operator	No change
FOC payment rate	£37.10 per minute of delay to third party trains, attributable to the freight operator	£51.98 per minute of delay to third party trains, attributable to the freight operator	Increase due to increase in passenger Schedule 8 payment rates, partially offset by improvement in calculation methodology

Bonus payment rate

20.120 In CP4, bonus payments, paid when Network Rail or a freight operator outperforms its benchmark, are paid at rates which are 50% of the compensation payment rates. This applies to both the Network Rail payment rate and the freight operator payment rate.

20.121 In our November 2012 consultation we said that we were considering our options in relation to this, but were minded to continue to set bonus payment rates at 50% of the compensation rate. Our reason for setting the bonus payment rate at 50% in PR08 was due to concerns that a 100% bonus payment rate would represent a significant

increase compared to the previous regime, and could present a barrier to entry for small operators, or potentially make existing small operators unviable.

20.122 Responses to our consultation were in general very much against us continuing to set bonus payment rates at 50%. In CP5, bonus payment rates will be set so they are equal to compensation payment rates. This is for the following reasons:

(a) due to seasonal fluctuations in performance, even when performance is at benchmark on average throughout the year, a net payment would be made when bonus payment rates are set at 50%. We estimate that it is most likely that this net payment would be from freight operators to Network Rail. This is driven by the fact that the CP5 freight operator payment rate is considerably higher than the Network Rail payment rate; and

(b) it makes it difficult for freight operators and Network Rail to accurately incorporate Schedule 8 payments into business cases for investments to improve performance, as the magnitude of the Schedule 8 savings/ income would differ depending on whether performance is better or worse than the benchmark.

20.123 We have considered the implications on small operators and new entrants and consider the existing protection offered by incident caps and annual caps on Schedule 8 payments is adequate. We are also concerned that the expected net cost to freight operators arising from setting bonus rates at 50% would be likely to outweigh the benefits arising from freight operators not needing to pay Network Rail full bonuses for improved performance that has yet to have an impact on revenue. For CP5 we will therefore set the bonus payment rate at 100% of the compensation payment rate.

Incident cap menu

20.124 A freight operator may opt to pay Network Rail an ACS to have an incident cap on its Schedule 8 liabilities for lateness and cancellations it causes to other train operators resulting from a single incident. As a result, an incident cap protects the freight operator from the risk of significant costs arising from a particular incident. The ACS reflects the fact that performance payments to third party operators still need to be made by Network Rail even if there are no incoming payments from the freight operator because the incident cap has been reached.

20.125 In our November 2012 consultation, we questioned whether we should continue to require Network Rail to offer this protection, which is, to a large extent, insurance to freight operators in relation to incidents they cause. We stated that we were minded to remove this requirement on the basis that it is something that could in principle be provided by the private insurance market.

20.126 Responses from stakeholders expressed strong concern that this is something the private market would not be able to provide at an affordable price, particularly given that it would be a new area of cover. We have a particular concern that this could have negative consequences on smaller operators or new entrants, whose cash-flows may be more adversely impacted from a single major incident, and therefore may be more reliant on this type of insurance.

20.127 Given there are no adverse funding implications associated with us requiring Network Rail to provide this coverage, we will therefore continue to require Network Rail to offer incident caps in return for an ACS. However, between now and the final determination we are exploring with Network Rail and the industry what data it can release to enable private insurers to enter the market.

20.128 Network Rail has produced an indicative menu of incident caps and associated ACSs, as shown in Table 20.6. The ACSs have been calculated by Network Rail using a methodology that estimates the expected cost to Network Rail of providing the incident cap, using data from the beginning of April 2010 to the end of March 2012. A contingency uplift of 10% is then applied to reflect the risk incurred by Network Rail and moral hazard (operators that cause more incidents are more likely to purchase a lower cap) that arises as a result of Network Rail providing this protection.

20.129 The ACSs are higher than in CP4. This reflects the fact that the freight operator payment rate will increase for CP5 and therefore the cost to Network Rail of providing incident caps will also increase. The calculations are based on the draft freight operator payment rate, and will be updated to reflect the final freight operator payment rate in the final determination.

Table 20.6: Indicative menu of incident caps and corresponding ACSs for freight operators to choose from

Incident cap (minutes of delay per incident)	ACS (£ per mile)
1,000	0.1247
2,000	0.0567
3,000	0.0350
4,000	0.0258
5,000	0.0183
6,000	0.0125
7,000	0.0079
8,000	0.0044
9,000	0.0009
10,000	0.0008
No cap	None

Annual caps on Schedule 8 payments

20.130 Freight operators and Network Rail have reciprocal caps on the net annual liability they face under the Schedule 8 performance regime. These provide an important protection to freight operators by providing certainty about the maximum liabilities they could face.

20.131 For CP5, annual caps on Schedule 8 payments will remain specific to each freight operator as the appropriate level depends on its scale of operations. Freight operators and Network Rail will still be entitled to negotiate their own reciprocal annual caps. These caps are subject to our approval, and should be set at a level with a low likelihood of being reached. This is because once an annual liability cap has been exceeded, the incentive and compensation effects of Schedule 8 are lost.

20.132 For small freight operators and new entrants, we will continue to set a default reciprocal annual liability cap, at the same level as we set for CP4, but uplifted for inflation. We consider a small freight operator to be any operator with less than 5% market share of total freight train miles run, in a given year.

20.133 All parties wishing to have an annual liability cap in CP5 will need to submit a proposal to us. Where caps other than the default cap are proposed, these will need to have been agreed by the freight operator and Network Rail. In the event that parties disagree, we will review the submissions from both parties before making a judgement on the appropriate cap.

20.134 Since the appropriate size of an annual cap depends on the scale of operations, as in CP4, both parties will be required to update the cap at the end of the year if annual contract mileage has varied by 2.5% or more since the cap was last updated. For operators with below 5% market share, the default annual cap will remain available.

Schedule 8 for charter operators

20.135 Charter operators are currently subject to different performance arrangements compared to other passenger operators. For CP5 we plan to introduce benchmarks into the Schedule 8 for charter operators to ensure financial neutrality of the Schedule 8 regime, and bring it in line with the Schedule 8 used by other types of operator. We will also be increasing the charter operator payment rate to reflect the increase in Schedule 8 payment rates for franchise and open access passenger operators.

20.136 The introduction of Schedule 8 benchmarks sits alongside our planned introduction of a capacity charge for charter operators, which is discussed in chapter 16 on access charges. The introduction of Schedule 8 benchmarks will reduce the impact on charter operators of the increase in the charter operator payment rate. However, we expect the increase in the charter operator payment rate to increase the incentive on charter operators to minimise the disruption they cause to other services.

20.137 After careful consideration, we have also decided not to remove the £5,524 cap on the amount of Schedule 8 payment a charter operator or Network Rail has to make in respect of a single incident it causes, or require either party to pay an ACS in order to receive this cap.

20.138 We will engage with industry before making our final determination on the changes we plan to make to Schedule 8 and charges for charter operators, including in relation to their administrative viability. Network Rail has recently issued a short consultation on charter operator charges for CP5. In this document Network Rail also outlines its views on Schedule 8.

Network Rail payment rate

20.139 In CP4, the Network Rail payment rate under the Schedule 8 for charter operators was the same as the Network Rail payment rate for freight operators. Ideally there would be a separate Network Rail payment rate for charter operators to more accurately reflect the actual impact of Network Rail caused delay on charter operators' costs and revenues.

20.140 We are not aware of any evidence on the impact of delays to charter operators on long term revenue and are also mindful that it could be burdensome for charter operators if we require them to provide us with evidence on this and involve resource disproportionate to the benefit of achieving a more accurate payment rate.

20.141 For CP5, the Network Rail payment rate in the charter operator Schedule 8 regime will therefore continue to be equal to the Network Rail payment rate in the freight operator regime, at £19.13 per minute of delay in 2012-13 prices.

Charter operator payment rate

20.142 The charter operator payment rate was set equal to the Schedule 8 freight payment rate in CP4. The charter operator payment rate should reflect the average impact of a minute of delay caused by a charter operator to other train operators.

20.143 There is now data available on the delay that charter operators cause to other train operators and this data has been used to calculate a specific charter operator payment rate, using the same methodology as that used to calculate the freight operator payment rate. Specifically, the charter operator payment rate has been calculated using the Network Rail £/ delay minute payment rates for each service group weighted by the proportion of third party charter operator delay affecting each service group. This results in a charter operator payment rate that better reflects the actual impact of delays caused by charter operators to other train operators than that used during CP4.

20.144 Using this improved methodology, Network Rail has calculated a draft charter operator payment rate of £69.31 per minute of delay. This CP5 rate is almost double the CP4 charter operator payment rate that was set equal to the Schedule 8 freight payment rate. The increase has been driven by the increase in draft Schedule 8 payment rates for passenger operators. The new rate better reflects the actual impact of delays caused by charter operators to other train operators. We recognise the

potential impact this increase in the charter operator payment rate would have if we were to continue with the charter operator Schedule 8 without benchmarks. Hence, for CP5, we plan to introduce benchmarks into the charter operator Schedule 8.

Introduction of benchmarks

20.145 The aim of introducing benchmarks into the charter operator Schedule 8 is to ensure financial neutrality of the Schedule 8 regime, and to bring it in line with the Schedule 8 regimes for franchised and open access passenger, and freight operators. This is particularly important, given the large increase in the charter operator payment rate, which without the introduction of benchmarks could leave charter operators considerably worse off financially. Our intention is that the benchmarks will be calculated using the record of Network Rail and charter operator caused delay minutes during CP4.

20.146 On the basis of CP4 delays and draft CP5 payment rates, we estimate that the introduction of Schedule 8 benchmarks alongside a capacity charge will result in charter operators being better off financially than with the continuation of a Schedule 8 with no benchmarks and no capacity charge.

Incident caps

20.147 In CP4, incident caps limited the amount of compensation per incident paid by charter operators to Network Rail under the Schedule 8 regime to £5,524. The same incident cap applied to compensation paid by Network Rail to charter operators, but has rarely been employed in practice, with Network Rail compensation to charter operators typically being for minor delays. Charter operators do not currently pay an ACS for incident caps.

20.148 An unfunded incident cap protects charter operators financially from Schedule 8 payments above £5,524 related to their delaying other operators. Following our November 2012 consultation on Schedules 4 and 8 we have decided to leave the incident cap (with no ACS) unchanged. Stakeholders provided evidence that the private insurance market would be unlikely to provide an affordable alternative to obtain financial protection facilitated by the incident cap. Given the increase in the charter operator payment rate, we do not plan to require charter operators to pay an ACS in return for the £5,524 incident cap, during CP5. In our final determination we will ensure Network Rail's funding requirement reflects elements of the charter regime that are not expected to be financially neutral during CP5.

Schedule 4 possessions regime

Passenger possessions regime

20.149 The Schedule 4 passenger regime was significantly overhauled in PR08. We are not making major changes to the regime as part of this periodic review, but there are a number of aspects we have reviewed in order to improve the incentives for Network Rail to plan possessions effectively and efficiently and to reduce the impact of possession disruption to passengers and freight customers. The main issues where we are proposing changes are in relation to replacement bus cost compensation and the level of compensation payable to operators where Network Rail makes late changes to Type 1 possessions.

Bus cost compensation formula

20.150 Franchised passenger train operators receive compensation for the cost of running rail replacement bus services where train services are cancelled due to possessions. Some stakeholders raised concerns in this periodic review about whether the level of bus compensation reduces the incentive on train operators to fully explore timetable solutions when dealing with service disruption as a result of possessions and encourages them to over rely on running rail bus replacement services, instead of running trains. For example, in a Passenger Focus survey of passengers' attitudes to possessions in September 2012, 55% of passengers surveyed said they would not travel by train if it involved the use of a bus for part of or all of their journey. Conversely, in industry discussions a number of train operators have stated that the current formula does not fully compensate them for bus costs.

20.151 Bus cost compensation is based on estimated bus miles (EBMs) and EBM payment rates, which represent the rate of compensation operators receive in £ per replacement bus mile operated. EBM payment rates are paid at two rates – one for London & South East services and one for services in the rest of the country. In our November 2012 consultation we proposed uprating EBM payment rates so that they reflect better the cost per mile of running replacement buses.

20.152 We have collected data from train operators on how much bus cost compensation they received and how much they actually spent on providing replacement buses in financial years 2010-11 and 2011-12. The results are summarised in Table 20.7 below, based on 89% coverage of train operators surveyed. They show that franchised operators which attract the London & South East EBM payment rate were,

on average, overpaid bus cost compensation for services by 10.7% and 5.4% in 2010-11 and 2011-12 respectively[381]. And those that attract the EBM payment rate for the rest of the country were over paid by 9.4% and 8.2% over the same period.

Table 20.7: Percentage difference between replacement bus cost compensation and actual bus cost

EBM Rate	2010-11	2011-12
London & South East	10.7%	5.4%
Rest of the country	9.4%	8.2%

20.153 We have decided to adjust bus compensation rates down by 7.9% for London & South East and 8.9% for the rest of the country, so they reflect our estimate of the real costs of providing replacement buses. In making our adjustment we calculated the average rate of bus costs overpayment based on the combination of the two years' data in order to smooth out the impact of variation in the level of possessions activity between years. We consider this decrease in EBM payment rates represents value for money for the taxpayer and removes any doubts of perverse incentives. It also will encourage train operators to drive down replacement bus costs.

Access Charge Supplement

20.154 Schedule 4 payments are funded through an access charge supplement (ACS) paid to Network Rail by franchised passenger train operators in return for receipt of full Schedule 4 compensation[382]. The ACS total reflects the amount Network Rail is expected to pay out in Schedule 4 possession compensation over the control period.

20.155 Network Rail's estimate of the total Schedule 4 cost for each control period is based on planned maintenance and renewals activity volumes and a Schedule 4 unit cost per asset type (e.g. track, signalling etc.) maintained or renewed. The base Schedule 4 cost for a control period is estimated by multiplying the planned volumes of each activity by the relevant Schedule 4 unit cost. For some asset types, such as bridges and tunnels, Network Rail does not have robust volumes data to base its

[381] London & south east EBM rate is £15.10 per EBM and rest of the country £10.15, (2011-12 prices)

[382] Open access operators can opt to pay the ACS if they wish to receive full Schedule 4 compensation.

Schedule 4 calculations on; for these asset types it uses forecast levels of maintenance and renewals spend as proxy for volumes.

20.156 For CP5, Network Rail has improved its methodology for calculating the ACS by forecasting planned activity volumes at route, rather than national level. This will help to bring Schedule 4 costs closer to the actual level of possessions faced by franchised passenger operators in each area. The ACS will continue to be apportioned pro-rata amongst franchised passenger operators based on historic Schedule 4 compensation payments paid to operators.

20.157 As in PR08, Network Rail estimated the per activity CP5 Schedule 4 unit costs at a national level because of the difficulty of producing robust estimates at route level due to the variability of data between routes for certain asset types such as signalling.

20.158 In response to our November 2012 consultation, respondents generally approved Network Rail's approach but requested we closely scrutinise Network Rail's ACS estimate. Respondents also called for further consideration of how Network Rail might develop a means to calculate route based Schedule 4 cost estimates for CP6.

20.159 Network Rail provided its estimated Schedule 4 costs as part of its SBP submission. Table 20.8 below sets this out:

Table 20.8: Passenger Schedule 4 costs and ACS estimate for CP5 in Network Rail's SBP submission

£m 2012-13 prices	CP4	CP5					CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain							
Franchised passenger Schedule 4 costs	(168)	(140)	(147)	(151)	(137)	(136)	(710)
Franchised Passenger ACS	141	140	147	151	137	136	710
Total	**26**	**0**	**0**	**0**	**0**	**0**	**0**
England & Wales							
Franchised passenger Schedule 4 costs	(155)	(126)	(130)	(131)	(122)	(121)	(630)

£m 2012-13 prices	CP4	CP5					CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Franchised passenger ACS	137	126	130	131	122	121	630
Total	**(18)**	**0**	**0**	**0**	**0**	**0**	**0**
Scotland							
Franchised passenger Schedule 4 costs	(13)	(14)	(17)	(20)	(15)	(15)	(80)
Franchised passenger ACS	4	14	17	20	15	15	80
Total	**(9)**	**0**	**0**	**0**	**0**	**0**	**0**

Note: Numbers may not reconcile due to rounding.

20.160 We have closely scrutinised Network Rail's ACS estimate and methodology. Our own engineers have assessed Network Rail's volume forecasts and pre-efficient expenditure levels to ensure that these reflected the levels of planned maintenance and renewals in Network Rails SBP submission. We also appointed our independent reporters to carry out a detailed audit of Network Rail's ACS calculation, its use of historic possessions and forecast volumes data in calculating the ACS as well as comment on its ACS calculation methodology[383].

20.161 The audit focused on

(a) data quality; and

(b) process accuracy and reliability.

20.162 The reporters found that Network Rail's overall approach to calculating the ACS by calculating Schedule 4 unit costs based on historic data and applying forecast CP5 volumes was an appropriate methodology with no obvious alternative.

20.163 The reporters concluded that the computations within the spreadsheet were accurate, finding only minor errors which were subsequently corrected by Network Rail but which did not have a material impact on the ACS calculation. The reporters made a

[383] http://www.rail-reg.gov.uk/pr13/publications/consultants-reports.php

number of recommendations to improve data input and handling in the model and on improving its functionality.

20.164 The reporters suggested that Network Rail should explore the feasibility of using multiple years' historic possessions data to represent unit costs for future control periods.

20.165 There exists the risk that if Network Rail does not carry out the amount of maintenance and renewal activity it forecast when calculating the ACS it will not need as many possessions and will gain a windfall from not having to pay out as much Schedule 4 compensation. Conversely, it may pay out more in compensation than it receives in ACS payments if Network Rail carries out more maintenance and renewals activity than it forecast, and consequently needs more possessions.

20.166 We carried out our own assessment of the volumes data used in Network Rail's ACS calculation and found this to be broadly consistent with our assessment of Network Rail's maintenance and renewal programme for CP5. We made minor adjustments to reflect inconsistencies.

20.167 The reporters did not assess volumes data used in the ACS model directly as this is subject to a separate assessment. In summary this separate volumes assessment found elements of best practice in Network Rail's SBP submission but also indicated a degree of uncertainty about the accuracy and consistency of the data as it is drawn from a wide range of sources. Once we have completed our assessment of this separate report we may vary our maintenance and renewals volume assumptions in our final determination. We will then recalculate Network Rail's Schedule 4 funding requirement and the associated ACSs to reflect any adjustment we make to volumes.

20.168 Subsequent to its SBP submission Network Rail updated its ACS calculation to take account of the draft CP5 Schedule 8 payment rates as discussed in the Schedule 8 section above, changes to the level of notification discount factors as a result of revised late time multipliers and our decision to reduce replacement bus compensation rates. As a result of these changes, based on the draft Schedule 8 payment rates, Network Rail will need funding of £1.05bn for its Schedule 4 costs over CP5, compared with its SBP estimate of £710m. This represents an increase of 48%. For our final determination, we will update Network Rail's Schedule 4 funding requirement and the associated ACSs, so they are based on the final Schedule 8

payment rates, and also incorporate any revisions we make to our renewals volumes assumptions.

20.169 Network Rail has projected Schedule 4 costs to be £168m for the final year of CP4. This compares with an average of £210m per year during CP5. The different is due to the increase in Schedule 4 payment rates, but there is also an increase in planned maintenance and renewals activity in CP5 compared to CP4.

20.170 In CP5, there will be a disproportionately large increase in Schedule 4 costs in Scotland, compared with Great Britain as a whole. This is due to the increase in the amount of renewal activity in Scotland. The largest increase is in signalling renewals volumes, which in CP5 will be almost 700% higher than in CP4.

20.171 Table 20.9 sets out our draft determination of Network Rail's Schedule 4 costs and ACS for CP5. Table 20.10 sets out the Schedule 4 ACS by train operator.

Table 20.9: Our draft determination Network Rail's passenger Schedule 4 costs and ACS income for CP5[384]

£m 2012-13 prices	CP4	CP5					CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain							
Franchised passenger Schedule 4 costs	(168)	(206)	(218)	(223)	(202)	(201)	(1,050)
Franchised Passenger ACS	141	206	218	223	202	201	1,050
Total	**(26)**	**0**	**0**	**0**	**0**	**0**	**0**
England & Wales							
Franchised passenger Schedule 4 costs	(155)	(186)	(193)	(193)	(180)	(180)	(932)
Franchised passenger ACS	137	186	193	193	180	180	932

[384] Network Rail informed us that it had not included an ACS for Heathrow Connect in its ACS calculation. It estimates an ACS for Heathrow Connect between £50-£100 thousand per annum. We will consider whether we need to make an adjustment to reflect this in our final determination.

£m 2012-13 prices	CP4	CP5					CP5
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Total	**(18)**	**0**	**0**	**0**	**0**	**0**	**0**
Scotland							
Franchised passenger Schedule 4 costs	(13)	(20)	(24)	(30)	(22)	(21)	(118)
Franchised passenger ACS	4	20	24	30	22	21	118
Total	**(9)**	**0**	**0**	**0**	**0**	**0**	**0**

Note:

1. CP4 2013-14 Schedule 4 figures are projections contained within Network Rail's SBP submission.
2. Numbers may not reconcile due to rounding.

Table 20.10: ACSs for franchised passenger operators

£m 2012-13 prices	CP5					CP5
	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Arriva Cross Country	18.2	18.2	17.9	16.3	15.9	86.6
Arriva Trains Wales	9.0	5.6	8.5	4.9	4.1	32.1
c2c	2.9	3.5	4.1	3.2	2.7	16.3
Chiltern	2.7	2.9	2.9	3.0	2.5	13.9
East Coast	28.4	35.9	36.0	33.0	40.9	174.2
East Midlands	7.9	7.1	6.4	5.5	4.9	31.9
First Capital Connect	6.7	7.3	6.8	6.3	6.9	34.1
First Great Western	28.8	25.3	26.5	22.5	23.7	126.9
First ScotRail	6.9	8.4	10.2	7.6	7.3	40.4
First Trans Pennine Express	6.2	6.8	6.9	6.8	6.4	33.1
Greater Anglia	12.9	15.7	18.2	14.2	12.3	73.2
Heathrow Connect	-	-	-	-	-	-
London Midland	4.4	4.6	4.7	4.8	4.0	22.4
London Overground	3.5	3.7	3.8	3.6	3.3	18.0

£m 2012-13 prices	CP5					CP5
	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Merseyrail	1.2	1.2	1.3	1.3	1.1	6.1
Northern	8.5	9.3	9.3	9.3	9.0	45.4
South West Trains	14.7	14.0	15.9	17.9	13.5	76.1
Southeastern	14.2	16.9	13.2	13.5	13.2	71.0
Southern	11.8	12.8	10.5	10.5	13.1	58.8
Virgin West Coast	16.9	18.4	20.0	18.1	15.9	89.4
Total	**205.7**	**217.8**	**223.0**	**202.2**	**200.9**	**1,049.6**

Note: Numbers may not reconcile due to rounding.

Notification discount factors

20.172 As discussed above, Network Rail receives a discount on the amount of Schedule 4 revenue loss compensation it pays to franchised passenger train operators for early notification of planned possessions; this is known as the notification discount factor[385]. The discount reflects the reduced impact on train operators' revenues where passengers receive early notice of service disruption due to possessions.

20.173 There are three levels of notice (known as notification thresholds) and the amount of discount differs for each threshold. Table 20.11 summarises the notification factors applied at each notification threshold for the majority of rail services as set at PR08. Notification discount thresholds are the same for all franchised train operators, whereas the level of discount varies slightly depending on the characteristics of particular services.

[385] Defined as percentage of marginal revenue effect (MRE) payable.

Table 20.11: CP4 Notification factors and thresholds

	By New Working Timetable[386]	By 22 weeks before possession[387]	By Applicable Timetable[388]
Service groups with late time multiplier[389] of 2.5	55% of MRE[390] Payable	70% of MRE Payable	85% of MRE payable
Service groups with delay multiplier 5.1/6.5	45% of MRE Payable	65% of MRE Payable	85% of MRE payable

20.174 Notification factors differ according to the late time multiplier used to calculate the Network Rail Schedule 8 payment rates.

20.175 The higher the late time multiplier, the more passengers are inconvenienced by unscheduled delay relative to timetabled increases in journey time, and therefore, the greater benefit to passengers of early notification of possessions. As discussed above, late time multipliers vary for different types of passenger journey and have been updated for PDFH 5.1.

20.176 As part of its calculations of updated Schedule 8 payment rates, Halcrow has calculated a draft average late time multiplier for each service group, which is the weighted average of the late time multiplier for each passenger journey within that service group. These will be updated in time for our final determination to reflect the adjustments that were made to the PDFH late time multipliers for London and South East commuter passengers, between Halcrow carrying out these calculations and the final version of PDFH 5.1.

20.177 Table 20.12 sets out the range of late time multipliers for which respective notification discount factors will apply.

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[386] The version of the timetable issued 26 weeks before it comes into operation. It broadly reflects the earliest operators are able to inform passengers of planned service disruption.

[387] Notification by this point allow the possession to be reflected in the informed traveller timetable

[388] The Working Timetable for any day as issued at 10pm, the previous night.

[389] Formerly known as delay multipliers.

[390] MRE refers to the Marginal Revenue Effect. This is the amount of long-term revenue estimated to be lost by a passenger operator per minute of lateness per passenger. The revenue is lost because a proportion of passengers switch away from travelling by rail because of delays. The Network Rail payment rate therefore reflects the MRE.

Table 20.12: CP5 revised notification factors for service groups, by late time multiplier

Average late time multiplier	By New Working Timetable	By 22 weeks before possession	By Applicable Timetable
4.3 or higher	40% of MRE Payable	63% of MRE Payable	85% of MRE Payable
3.4 to 4.2	45% of MRE Payable	65% of MRE Payable	85% of MRE Payable
2.8 to 3.3	50% of MRE Payable	68% of MRE Payable	85% of MRE Payable
2.7 or less	55% of MRE Payable	70% of MRE Payable	85% of MRE Payable

Additional protection for late changes to possession plans

20.178 In response to our May 2011 and December 2011 consultations, a number of franchised passenger train operators said that the current Schedule 4 incentivises Network Rail to book possessions early in order to receive the maximum discount, even where the work to be undertaken is not very certain. Train operators have argued that as a consequence too many possessions are poorly planned and/ or subject to late notice changes or cancellations. These late changes, they argue, impact on franchise operators in terms of reputational damage and because they incur direct costs that cannot be recovered under Schedule 4, if services are reinstated.

20.179 It is right that Network Rail is encouraged to inform operators about possessions as early as possible; provided that they are not booked so far in advance that they cannot be planned properly. We are aware that there is sometimes a misperception that the cause of Network Rail to book possessions too far in advance is principally due to the notification discount factors and thresholds within Schedule 4, in particular where the maximum discount threshold is set. Possessions are often planned long before the first notification discount threshold, which is set at publication of the new working timetable. It is our view that it is Network Rail's timetable and engineering planning process and in particular the timescales for completing the Engineering Access Statement that is the primary driver of some possessions being booked very far in advance. We consider changes to the timetable planning process would be more effective in addressing this problem than a change to the first notification

discount threshold within Schedule 4. Changes to the timetable planning process are dealt with under the Network Code and as such not part of this periodic review.

20.180 We do, however, think it is right that operators should be compensated for costs incurred where cancellations or late changes are made to possessions by Network Rail. In order to recover these additional costs incurred and also act as an incentive on Network Rail to plan possessions more carefully at the outset, ATOC proposed extending the scope of the protection provided by paragraph 2.9 of Schedule 4[391] to enable the recovery of direct costs related to amended or cancelled Type 1 possessions. ATOC suggested that the threshold for triggering a claim should be set at £5,000 per possession[392].

20.181 Subsequent to our November 2012 consultation, Network Rail has proposed that this protection should be based on a liquidated damages regime to reduce transaction costs and uncertainty. Network Rail has recently sent out a letter to consult on this proposal. We are not convinced that a liquidated damages regime would be appropriate in this instance. While Network Rail has not been able to provide us with data on the number or proportion of possessions that are later cancelled, we expect this to be much lower in magnitude than the number of possessions planned in the first place. Costs incurred by train operators are likely to vary in nature and amount depending on the characteristics of the possession and the point of time it is cancelled.

20.182 We therefore plan to increase the protection provided by paragraph 2.9 of Schedule 4 to enable the recovery of direct costs related to amended or cancelled Type 1 possessions, for cancelled possessions where the resulting costs incurred are £5,000 or more. Our view overall is that a liquidated damages regime is not justified in this instance given the likely number of claims, and complexity in developing it in such a way that it would appropriately compensate train operators. However, when we

[391] In broad terms, under paragraph 2.9, where a booked possession is changed from one type to another (or even cancelled entirely), the affected operator's compensation rights are limited to what would have been available as if the new type of possession had been booked in the first place. If the operator has already committed or incurred reasonable costs before the amendment, however, it may still recover those, but only to the extent that the same would have been recoverable for the original type of possession anyway.

[392] For Type 2 and 3 possessions, the threshold for claiming additional compensation is £10,000. We have set the threshold for Type 1 possessions at £5,000 as this is closer to typical level of cost faced by operators where cancellations or changes to Type 1 possessions are made at short notice.

conclude on this in our final determination, we will take into account the proposal Network Rail outlines in its letter and responses it receives from stakeholders.

Sustained planned disruption

20.183 The sustained planned disruption (SPD) mechanism is designed to protect train operators from instances where there is severe disruption caused by possessions over a sustained period. Additional compensation for SPD is triggered when the impact of severe disruption crosses a pre-defined level (in terms of revenue lost and increased costs) at which point train operators may claim additional revenue/ cost compensation above that covered by the liquidated sums payable under Schedule 4.

20.184 As part of the Schedules 4 and 8 working group, papers submitted by both Network Rail and ATOC agreed that there was no desire for a major change to the existing system apart from clarification of the contractual wording to provide greater clarity between franchised passenger operators and Network Rail over the interpretation of the SDP provisions. ATOC in particular stated that different interpretations of contractual provisions relating to the SPD mechanism can make claiming compensation more contentious and difficult to price than ought to be the case.

20.185 We are making a minor change to the SPD provisions within the passenger track access contract to ensure that they are consistent with purpose of the SPD mechanism as determined at PR08 and that criteria set out for claiming additional revenue loss and cost compensation is clear and unambiguous to all parties. These changes will be included in our revised drafting of the template track access contracts, which we will consult on in July 2013

Revenue loss formula

20.186 In our November 2012 consultation, we also considered making changes to the replacement bus revenue formula aspect of Schedule 4 to address anomalies in how the revenue loss formula compensates franchised passenger train operators where replacement buses are used as substitutes for cancelled train services. We have decided not to make changes to this aspect of Schedule 4. This is because the 'average regime' nature of Schedule 4 means it is likely to result in cases where it over or undercompensates operators, and we are keen not to make changes unless they are likely to result in real benefits. This is supported by responses to our November 2012 consultation and in discussions with the Schedules 4 and 8 industry working group.

Freight possessions regime

20.187 Freight operators receive compensation within Schedule 4 for planned disruption. Compensation for planned disruption notified before T-12[393] is based on three tiers of disruption, each tier representing different levels of disruption faced by freight operators. Flat rate liquidated sums are paid for the first two tiers, with the possibility of additional actual costs/losses available for the most disruptive possessions. The criteria for possession types and compensation rates (2012-13 prices) for each tier is set out below in Table 20.13. Unlike franchised passenger operators, freight operators do not pay an ACS in order to be able to receive compensation under Schedule 4. The expected costs of freight Schedule 4 are instead funded by the government as part of Network Rail's funding requirement.

Table 20.13 Structure of freight Schedule 4 possessions regime

Possession notified before T-12	Possession notified after T-12
Category 1 compensation - £300 per service • Additional end to end journey distance greater than 10 miles; or • Planned departure time from Origin differs by more than 60 minutes; or • Planned arrival time at Destination differs by more than 60 minutes; or • More demanding length or weight restrictions imposed.	**Service variation - £596 per service** • Additional end to end journey distance is greater than five miles; • The addition of at least one Planned reversing movement; • More demanding length, weight or gauge restrictions imposed; • The use of at least one additional locomotive; • The use of diesel instead of an electric locomotive is required; • Planned departure time from Origin differs by more than 30 minutes; • Planned arrival time at Destination differs by more than 30 minutes; • The service is treated as a train operator variation request.

[393] T-12 refers to twelve weeks before the date of the possession.

Possession notified before T-12	Possession notified after T-12
Category 2 compensation - £800 per service • The affected service is cancelled, or; • More demanding gauge restrictions , or; • The use of at least one additional locomotive is required, or; • The use of a diesel locomotive as a substitute for an electric locomotive is required.	**Late Notice - £1,566 per service** • The service is cancelled.
Category 3 - possibility of actual costs/losses in addition to liquidated damages • Access from Origin or to Destination is blocked (incl. where a suitable gauge cleared route is not available for longer than 60 hours); or • Any of the freight conveyed on the service has to be transported by other means; or • The use of at least one additional locomotive is required; or • The use of a diesel locomotive as a substitute for an electric locomotive is required.	**Category 3 - possibility of actual costs/losses in addition to liquidated damages** • Access from Origin or to Destination is blocked (incl. where a suitable gauge cleared route is not available for longer than 60 hours); or • Any of the freight conveyed on the service has to be transported by other means; or • The use of at least one additional locomotive is required; or • The use of a diesel locomotive as a substitute for an electric locomotive is required.

20.188 Currently, freight compensation is set at a level broadly reflecting the amount paid out under Part G of the Network Code prior to PR08. (The Schedule 4 provisions under Part G were removed when Schedule 4 was overhauled as part of PR08.)

20.189 Freight operators consider that this level of funding no longer reflects the costs incurred due to possessions and that we should adopt a different basis for setting compensation rates.

20.190 Currently Network Rail is funded around £8.2m per annum (2012-13 prices) to compensate freight operators for disruption due to maintenance and renewal possessions. This is funded by government subsidy. It remains open for freight operators to receive increased Schedule 4 payment rates in return for paying an ACS.

20.191 In our November 2012 consultation, we stated that we were not minded to increase the level of funding for the freight regime unless we received compelling arguments as to why we should do so.

20.192 Since then we have received information from Network Rail about the forecast levels of possession activity, and therefore the disruption freight operators are likely to face during CP5. Based on this information, freight operators are likely to face a considerable increase in the level of disruption compared to CP4. If we were to keep the level of funding constant, this would mean compensation rates for freight operators would fall by approximately 30%.

20.193 We have assessed the information supplied by Network Rail about the forecast level of possessions disruption faced by freight operators in CP5 and found this to be correct.

20.194 We consider such a forecast 30% fall in compensation rates would significantly reduce the incentive on Network Rail to limit the amount of disruption faced by freight operators. It would also lead to a significant reduction in the levels of compensation received by freight operators. We therefore have decided to maintain the current compensation rates in real terms; adjusting the level of funding accordingly to reflect the forecast increase in activity levels. This means the average annual freight Schedule 4 maintenance and renewal possessions compensation funding will increase to £12.2m per annum, an increase of around 49%.

20.195 Table 20.14 summarises our determination of the level of funding Network Rail will require in CP5 to cover its expected freight Schedule 4 costs.

Table 20.14: Our determination of Network Rail's freight Schedule 4 funding requirement for CP5[394]

£m 2012-13 prices	CP5					CP5
	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Great Britain	11.7	12.4	13.0	11.7	11.8	**60.7**
England & Wales	10.3	10.7	11.0	10.2	10.3	**52.5**
Scotland	1.4	1.7	2.1	1.5	1.5	**8.2**

Note: Numbers may not reconcile due to rounding.

[394] Network Rail has subsequently informed us that it did not include funding for service variations payments compensated under Schedule 4. It now estimates that it will require funding of around £612,000 (2012-13) prices. We will consider this for our final determination.

Summary of main differences between CP4 and CP5

20.196 Table 20.15 summarises the main changes in CP5 compared to CP4

Table 20.15: Main changes in CP5 compared to CP4

Which Schedule 4 or Schedule 8?	What has changed?
Schedule 8 for franchised and open access passenger operators	• Payment rates have been updated to reflect the latest evidence on the impact of performance on long-term passenger revenue • Benchmarks have been updated to reflect our expectation of performance in CP5 • Passenger charter element of Schedule 8 has been removed
Schedule 8 freight operators	• The freight operator payment rate has been updated to reflect the increase in passenger Schedule 8 payment rates • Benchmarks have been updated to reflect our expectation of performance in CP5 • Bonus payment rates will be set at same level as compensation payment rates
Schedule 8 for charter operators	• Introduction of benchmarked Schedule 8 to be consistent with Schedule 8 for freight operators • Charter operator payment rate has been updated to reflect the increase in passenger Schedule 8 payment rates
Schedule 4 for franchised passenger operators	• Schedule 4 revenue loss payment rates are being updated to reflect the increase in Schedule 8 payments. • Replacement bus cost compensation rates have been reduced to reflect actual cost of operating replacement buses • Notification discount factors have been updated to reflect revised late time multiplier values • The Schedule 4 access charge supplement (ACS) has been updated to reflect the change in Schedule 4 payment rates and notification discount factors • Compensation for costs incurred as a result of Network Rail cancelling or amending possessions at late notice has been extended to Type 1 possessions
Schedule 4 for freight operators	• Network Rail's funding to cover the expected cost of freight Schedule 4 compensation has been increased to maintain compensation payment rates at CP4 levels in real terms.