Periodic review 2013
Consultation on incentives
December 2011

OFFICE OF RAIL REGULATION

Contents

Acronyms and abbreviations

ATOC	Association of Train Operating Companies
Capex	Capital expenditure
CLG	Company limited by guarantee
CP3	Control period 3 (1 April 2004 – 31 March 2009)
CP4	Control period 4 (1 April 2009 – 31 March 2014)
CP5	Control period 5 (1 April 2014 – end date to be decided)
DfT	Department for Transport
EBSM	Efficiency benefit sharing mechanism
FIM	Financial indemnity mechanism
FOC	Freight operating company
HLOS	High level output specification
IIP	Initial industry plan
May consultation	'Periodic review 2013: First consultation', published in May 2011 (Our first consultation on PR13)
MIP	Management incentive plan
Opex	Operating expenditure
ORR	Office of Rail Regulation
PDFH	The Passenger Demand Forecasting Handbook

POG	Planning Oversight Group
PPM	Public performance measure
PR08	Periodic review 2008
PR13	Periodic review 2013
PTE	Passenger Transport Executive
RAB	Regulatory asset base
REBS	Route-based efficiency benefit sharing mechanism
RoU	Restriction of use
RUS	Route utilisation strategy
RVfM study	'Realising the Potential of GB Rail: Report of the Rail Value for Money Study', published in May 2011
SBP	Strategic business plan
Schedule 9	The financial adjustment mechanism in franchise agreements, normally found in Schedule 9
SoFA	Statement of public financial resources available
TOC	Train operating company

Executive summary

1. This document sets out for consultation our current thinking on the way in which we will use incentives in our forthcoming periodic review of Network Rail's access charges (PR13). In doing so, it builds on our first consultation on the periodic review, which we published in May 2011.

2. Our periodic review takes place at a key time for the railways in Great Britain. The Rail Value for Money study (RVfM study) that we jointly commissioned with the Department for Transport (DfT) reported earlier this year and set out a series of important challenges for the industry. The study emphasised the nature of the railway as a system, and the importance of the effective working of the interfaces within it. In particular, the study identified cost savings of around £1billion that the industry could deliver, not least by improving its working together across those interfaces.

3. We will take a system-wide approach in PR13. To do this we will need to develop our understanding of how Network Rail responds to our incentives and how its customers, the train operators and freight operators, respond to changes in Network Rail's behaviour. We will aim to maximise the effectiveness of these interfaces by aligning incentives across them to encourage parties to work together to deliver the outcomes that customers and society want, and to do so efficiently.

4. We intend to maintain a clear focus on these outcomes throughout PR13. Taking account of the evidence on what customers and society value from the railway, we suggest that we should focus in particular on the following outcomes:

(a) Passenger satisfaction

(b) Freight customer satisfaction

(c) Economic growth

(d) Connectivity

(e) Environmental sustainability.

5. Where we incentivise Network Rail to deliver more specific outputs, we will understand how those outputs contribute to these outcomes. We recognise that there are trade-offs between these outcomes, and between the interests of different beneficiaries of the railway. There are also trade-offs between the interests of current customers and funders and future customers and funders.

6. The industry has provided its response to the RVfM study in its Initial Industry Plans (one for England & Wales and another for Scotland). We are reviewing these plans and will set out our view in our Advice to Ministers (the Secretary of State for Transport and Scottish Ministers) in March. This will inform the work by DfT and Transport Scotland in setting out what they wish to buy from the railway in their High Level Output Statements (HLOSs) and Statements of Funds Available (SoFAs). These documents will be key inputs for PR13.

7. Beyond the RVfM study, there are other important aspects of the context for PR13, which will influence our work. These include industry reform. Network Rail is in the process of devolving more power and accountability to the route level. It is possible in due course that Network Rail could let concessions for the operation of parts of its network. Other possible reforms include Network Rail's setting up a distinct construction project delivery arm, which could compete with external companies to provide construction services to Network Rail. These reforms have the potential to introduce greater transparency, greater use of market mechanisms, and better information for regulation. To the extent that they do, we would support them.

8. Beyond this, operators and Network Rail are already considering alliances, and the use of more bespoke arrangements beyond those contained in the detail contracts that we have set out. Again, we would support such arrangements where they improved the alignment of incentives between parties but we are mindful of the need to ensure that adequate safeguards exist for third parties. We would need to approve such arrangements, and we are consulting in this document on principles we could use in assessing them.

9. We have noted above that some aspects of industry reform would facilitate greater use of market mechanisms. We would welcome this. We will use our regulatory and competition powers to ensure that markets in the rail industry work as well as possible, for the benefit of customers, funders and society. This includes markets through the supply chain, for Network Rail and for TOCs and FOCs. We have recently consulted on the scope for, and desirability of, more direct 'on-rail' competition between passenger train operators and we will conclude on this in our forthcoming document setting out the regulatory framework for PR13.

10. Franchise reforms being considered by DfT and Transport Scotland would also have a major significance for PR13. To date, the alignment of incentives between Network Rail and franchised TOCs has been substantially undermined by the protection provided in their franchise contracts against changes to Network Rail's access charges. This protection has largely removed the interest of franchisees in Network Rail's costs and with it their incentive to work together with Network Rail to reduce them. In its new franchise contracts the DfT is considering reducing the extent of the protection provided, which would greatly improve the alignment of incentives.

11. We are firmly committed to improving the transparency of information in the rail industry. The availability of good quality information is crucial if market participants, including customers and funders, are to be able to make good decisions, for example, about investment. It is also crucial for effective regulation.

We intend to use PR13 to improve levels of transparency in the industry. In particular, our work on whole-industry costs and on TOC benchmarking will reveal information about where costs lie in the industry and where efficiencies may be achieved.

12. Further, the government is considering moves towards a more local approach to output specification and funding for the railway. We wish to facilitate such an approach, including through PR13. In particular, we will consider the extent to which we can take a disaggregated approach to the specification and measurement of outcomes and outputs for PR13. We also intend to support a more local approach by providing greater transparency of costs and revenues at the local level.

13. In particular, in this document we are consulting on specific proposals in respect of:

(a) aligning incentives to improve efficiency;

(b) Schedules 4 and 8 (the performance and possessions regime);

(c) access charges;

(d) capacity utilisation;

(e) our approach to the cost of capital and Network Rail's financial structure;

(f) the incentive properties of our treatment of operating expenditure and capital expenditure; and

(g) other targeted incentives, specifically for innovation and environmental sustainability.

14. Under the current industry structure, train operators are to a large extent protected from changes to Network Rail's fixed costs. By partially exposing operators to these costs, we consider that there are significant opportunities for train operators to help increase Network Rail's efficiency. We propose a mechanism to allow for Network Rail's efficiency out performance or under performance to be shared between Network Rail and passenger and freight operators. We consider that such an approach is best applied at the Network Rail route level, rather than at an aggregate national level. We also propose a mechanism that would expose operators partially to some of the changes in Network Rail's costs as determined in a periodic review.

15. A key aspect of our regulatory framework that affects the alignment of incentives is Schedule 4 and 8 of the track access contract. These schedules provide liquidated damages regimes through which one party is compensated for disruption as a result possessions for engineering work (Schedule 4) and performance failures (Schedule 8). Our stakeholders have differing views on the effect of Schedules 4 and 8 on the alignment of incentives. Some believe that the regime works well and ask us to review only the calibration of the liquidated damages payments. Others believe that the regime pits users and Network Rail against each other in a way that produces poor results for the passenger and freight customers. We propose ways in which the calculation of compensation payments could be adjusted better to reflect the impact of disruption or performance failure. We also seek views on whether more fundamental reform is needed.

16. In respect of access charges, we note the importance of access charges as the key element of the interface between Network Rail and its customers. We support the move towards more bespoke arrangements where these will improve alignment of incentives between Network Rail and operators. But we are aware of the need to provide safeguards, especially for third parties. We are consulting on the principles we could use to assess bespoke arrangements and on what safeguards may be necessary.

17. The efficient use of network capacity will be critical if the industry is to meet the value for money challenge. Network capacity is a scarce resource especially in relation to key nodes on the network and at peak times. We ask whether the current incentive could be improved and whether Network Rail is effectively incentivised to make more network capacity available. We continue to support a capacity charge that signals the costs of delays due to congestion. We are minded to continue with the volume incentive currently in place, but want to consider whether it is best applied at the Network Rail route level. We are interested in developing ideas for a scarcity-based charge, as we think this could send effective signals for efficient capacity usage.

18. In respect of our approach to the cost of capital and Network Rail's financing, we note that Network Rail's cost of capital should reflect the risk profile facing the business. We recognise that because of the way in which Network Rail is financed (entirely by debt which is underwritten by government) the cost of capital of the business is substantially higher than the cost Network Rail actually faces in raising finance. We set out the options for dealing with these surplus funds. Through our choice of options, we will influence the balance of funding between current and future customers and funders. We could also make it easier or harder for changes to be made to Network Rail's financing structure in future, for example through the issuing of unsupported debt or ultimately potentially equity. We recognise that pressure on public finances may result in a desire among funders for us to keep the revenue requirement in CP5 as low as possible. To the extent that options that achieve this increase Network Rail's debt, we will need to consider the long-term sustainability of its financial arrangements. We will also need to consider the balance between the interests of current and future customers and funders of the railway.

19. We also discuss the incentive properties of our treatment of operating expenditure (opex) and capital expenditure (capex). We note that in other sectors a combination of company culture and regulatory incentives has led regulated companies to favour capex solutions over opex, and we ask whether this is the case in rail. In principle, we consider that the regulatory framework should not distort incentives to engage in different classes of expenditure, but we seek views on the extent of any such problem in rail and whether and what we might therefore do to address it.

20. We agree with the RVfM study that innovation will be critically important if the industry is to deliver major improvements in value for money. There have been significant innovations in the rail industry, and there are major innovations currently being delivered (such as ERTMS). But there are barriers to innovation. Some of these are common across industries, such as the risk that the firm investing in research and development will not recover those costs from the innovation that results, especially where the cost recovery would depend on widespread take-up of ground-breaking approaches. Other barriers are

specific to rail. The recent report from the Technology Strategy Advisory Group cited poor alignment of incentives, the lack of a stable planning environment and a fragmented approach to implementing new process. We consider options for addressing these barriers. By setting challenging efficiency targets we should provide Network Rail with an incentive to innovate. We must also ensure that the way in which we regulate does not stifle innovative approaches. Beyond this we seek views on further options, such as longer control periods, longer payback periods, innovation KPIs, targeted funds and innovation prizes.

Finally, we discuss the substantial contribution that the rail industry makes to environmental sustainability. We are keen to ensure that it continues to make this contribution. In doing so we need to balance the environmental benefits that modal shift to rail brings, with a desire for the rail industry to face the environmental costs it generates (which where these are not faced by other modes may work against modal shift). Our efficiency incentives will help to drive environmental improvements. Beyond this we consider more targeted incentives, for example to reduce transmission losses, incentives to switch to on-train metering and environmental surcharges. We also note the potential for reputational incentives to secure environmental improvements.

1. Introduction

1.1. In May 2011, we began the preliminary phase of our next periodic review of Network Rail's access charges (PR13) by consulting on our initial thinking on a broad range of issues as well as setting out our proposed high-level timetable and objective for the review ('the May consultation') [1]. The purpose of the May consultation was to get stakeholders views ahead of the start of the formal phase of PR13 in early 2012.

1.2. This document sets out for consultation our current thinking on what we wish to achieve through PR13 and how we expect to use the incentive tools available to us to do this. It expands and builds on some of the high-level proposals we set out in our May consultation, and reflects our consideration of the responses we received to it[2]. In Part A of the document, we set out for consultation our overarching view of incentives in PR13. We put PR13 in the context of various industry developments, such as industry reform and franchise reform, various Government initiatives, including localism and transparency, and the use of our own broader incentive tools, such as financial incentives.

1.3. Part A comprises:

Chapter 2 provides some background on the context in which we are carrying out PR13.

Chapter 3 sets out how we linking outputs to outcomes, and outcomes to our overall PR13 objective.

1.4. In Part B of the document, we set out for consultation some proposals in relation to specific incentive tools:

Chapter 4 sets out our proposals for aligning incentives to reduce costs in the industry.

Chapter 5 discusses the Schedule 4 and Schedule 8 possessions and performance regimes.

Chapter 6 discusses various track access charges, including possible options to increase the flexibility in setting charges and in providing for bespoke arrangements between Network Rail and train operators.

Chapter 7 discusses various ways of improving incentives to better utilise network capacity.

Chapter 8 considers the most efficient way of financing Network Rail.

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[1] *2013 Periodic Review: First Consultation* and *2013 Periodic Review: First Consultation Annexes, available at* http://www.rail-reg.gov.uk/pr13/consultations/orr013.php. [2] These responses are available on our website at the above link.

Chapter 9 considers, in respect of Network Rail, the incentive properties of operating and capital costs.

Chapter 10 discusses other incentives, namely for increasing innovation and improving environmental outcomes.

1.5. We welcome responses on any aspect of this consultation. In particular we welcome responses to the questions we ask throughout this document (which are listed in full in Annex A). We will also post the full list of questions on our website in MS Word format to make it easier to you to respond to them.

1.6. This is an eight week consultation. This period takes account of the valuable engagement we have already had with stakeholders on incentives through the May consultation, the industry workshops in July along with the focused workshop on capacity-related incentives and cost and revenue sharing on 23 September, and other engagement/dialogue with stakeholders.

1.7. Please send your responses in electronic (or if not possible, in hard-copy format) by close of business on Wednesday 8 February 2012 to:

Richard Owen
Office of Rail Regulation
One Kemble Street
London
WC2B 4AN
Email: richard.owen@orr.gsi.gov.uk
Tel: 020 7282 2156

1.8. Please note, when sending documents to us in electronic format that will be published on our website, we would prefer that you email us your correspondence in Microsoft Word format. This is so that we are able to apply web standards to content on our website. If you do email us a PDF document, where possible please:

(a) create it from the electronic Microsoft Word file (preferably using Adobe Acrobat), as opposed to sending us a scanned copy of your response; and

(b) ensure that the PDF's security method is set to 'no security' in the document properties.

1.9. If you send a written response, you should indicate clearly if you wish all or part of your response to remain confidential to ORR. Otherwise, we would expect to make it available on our website and potentially to quote from it. Where your response is made in confidence please can you provide a statement summarising it, excluding the confidential information, which can be treated as a non-confidential response. We may also publish the names of respondents in future documents or on our website, unless you indicate that you wish your name to be withheld.

Next steps

1.10. We will be holding an industry workshop on Monday 9 January 2012. Details of the workshop will be circulated shortly, but will include a session on possible approaches to disaggregating Network Rail's financial data by route.

1.11. We intend to publish our Advice to Ministers document on 15 March 2012. This will help inform the High-Level Output Specification (HLOS) and Statement of Funds Available (SoFA) for each of England & Wales and Scotland by both the UK Government and the Scottish Government respectively in late July 2012.

1.12. Following our consideration of the responses to this consultation and the discussion at this workshop, we plan to conclude on the issues covered by this document in a further publication in which we will set out our regulatory framework for PR13 following our Advice to Ministers in 2012. This will also conclude on the issues raised in our recent consultation on on-rail competition[3] and any relevant outstanding issues from the May consultation.

[3] The potential for increased on-rail competition – a consultation document, October 2011, available at http://www.rail-reg.gov.uk/pr13/PDF/on-rail-competition-consultation-oct11.pdf.

PART A

Part A contains:	
Chapter 2	Provides some background on the context in which we are carrying out PR13.
Chapter 3	Sets out how we linking outputs to outcomes, and outcomes to our overall PR13 objective.
Our specific policy proposals for this consultation are set out in Part B	

2. Background and context

Key messages from this chapter

- In our forthcoming periodic review we will determine the revenue that Network Rail needs in order efficiently to produce the outcomes and outputs its customers and wider society want. We will also set out how this revenue should be recovered from charges for access to track, stations and depots.
- We will take a whole-system approach to PR13. We are keen to set out the outcomes that customers and society want to see from the railway. We will encourage Network Rail to understand its role in delivering those outcomes. In regulating Network Rail we will understand its interfaces with TOCs and FOCs and its supply chain, and take these into account.
- We understand the wider context in which we will do PR13. This includes industry reform, franchise reform, localism, and transparency.
- We will regulate in a way that makes the best use of market mechanisms, to reveal information, allocate resources and provide incentives on market participants for greater efficiency.
- We will work closely with the DfT and Transport Scotland in order to understand and take account of their decisions, in particular their responses to the RVfM study.

What is a periodic review?

2.1. Network Rail, as a monopoly supplier of access to the rail network, is not subject to the pressures faced by companies in normal competitive markets. These pressures encourage companies to provide, efficiently, the goods and services that their customers want at a price that they are willing to pay. Because such pressures are absent from Network Rail, we aim to replicate them through our regulation. Through our periodic reviews, as well as through other means, we incentivise it to respond to its customers as a normal company would.

2.2. Through a periodic review we determine:

(a) the outcomes and outputs that Network Rail must deliver over the next control period (including any outputs specified by the Secretary of State (for England & Wales) and Scottish Government in their HLOSs). For example, improved levels of performance or increases in capacity;

(b) the efficient cost of delivering those outcomes and outputs, including both the scope of the work that needs to be done and the cost of doing it;

(c) the revenue that Network Rail therefore would require to deliver them; and

(d) the way in which Network Rail should recover those costs through the access charges it levies on passenger and freight train operators for using its network facilities, such as its track:

2.3. As part of a periodic review we set the framework for how Network Rail would gain or lose, in financial or in reputational terms, according to what it does and the manner in which it does this. We therefore have a strong influence on its behaviour. In addition to these specific incentive tools, we also influence what Network Rail does and how it does by the way in which we specify what Network Rail should deliver and how we assess its costs.

2.4. The incentives set through our periodic review have a wider influence beyond Network Rail. Network Rail is, by far, the biggest company in the rail industry in Great Britain. It accounts for over £6 billion of industry turnover[4], approximately £4 billion of which is spent through the supply chain. Its influence extends throughout the industry. The incentives we place on Network Rail therefore have an impact across the industry. Because our review affects Network Rail's access charges, it directly affects the interface between Network Rail and its customers (principally passenger and freight operators) and indirectly affects the way that its customers deal with their customers (passengers and freight customers). It also affects the way that Network Rail procures and interacts with its supply chain.

2.5. The delivery of value for money for customers and funders will require all players in the industry to work together effectively and efficiently across their many interfaces. It is therefore critically important that in our periodic review we ensure that the incentives across those interfaces are aligned. Only if this is the case we will see all those involved to working towards the efficient delivery of the outcomes that customers and society want and are willing to pay for.

The context for PR13

The value for money challenge

2.6. As set out in the recent Rail Value for Money study (RVfM Study) [5] which we commissioned jointly with the Department for Transport (DfT), the rail industry in Great Britain faces a major challenge in order to secure greater value for money.

2.7. The RVfM Study undertook a 'top-down' analysis to assess what the GB railway should cost if it were operating at the frontier of efficiency, having made efficiency improvements in line with what has been achieved in companies in other privatised industries. In this context, the study estimated that the industry's total costs in 2008/09 were between £2.5 billion and £3.5 billion above what might have been expected, with approximately £1.8 billion to £2.3 billion (c 70%) of this gap attributable to Network Rail. After allowing for savings in Network Rail's expenditure in line with the current control period 4 (CP4) settlement determined at the last periodic review and assuming the ORR's indicative range of costs for Network Rail in the next control period (CP5), the analysis suggested a remaining efficiency gap in the rail industry of between £0.7 billion and £1.7 billion.

2.8. The RVfM Study also estimated on a 'bottom-up' basis that there is potential to remove between £740 million and £1.050 billion of cost from the industry by 2018/19, above that already

[4] See Table 5.6, Annual efficiency and finance assessment of Network Rail, ORR, 2011 http://www.rail-reg.gov.uk/server/show/nav.2050,

[5] *Realising the Potential of GB Rail*, Report of the Rail Value for Money Study, see http://www.rail-reg.gov.uk/server/show/ConWebDoc.10401.

targeted for Network Rail in CP4 and provisionally indicated by ORR for CP5. Table 2.1 below shows the source of these potential savings as set out in the RVfM study.

Table 2.1: Estimate of saving by 2018/19 (2009/10 prices), source RVfM Study

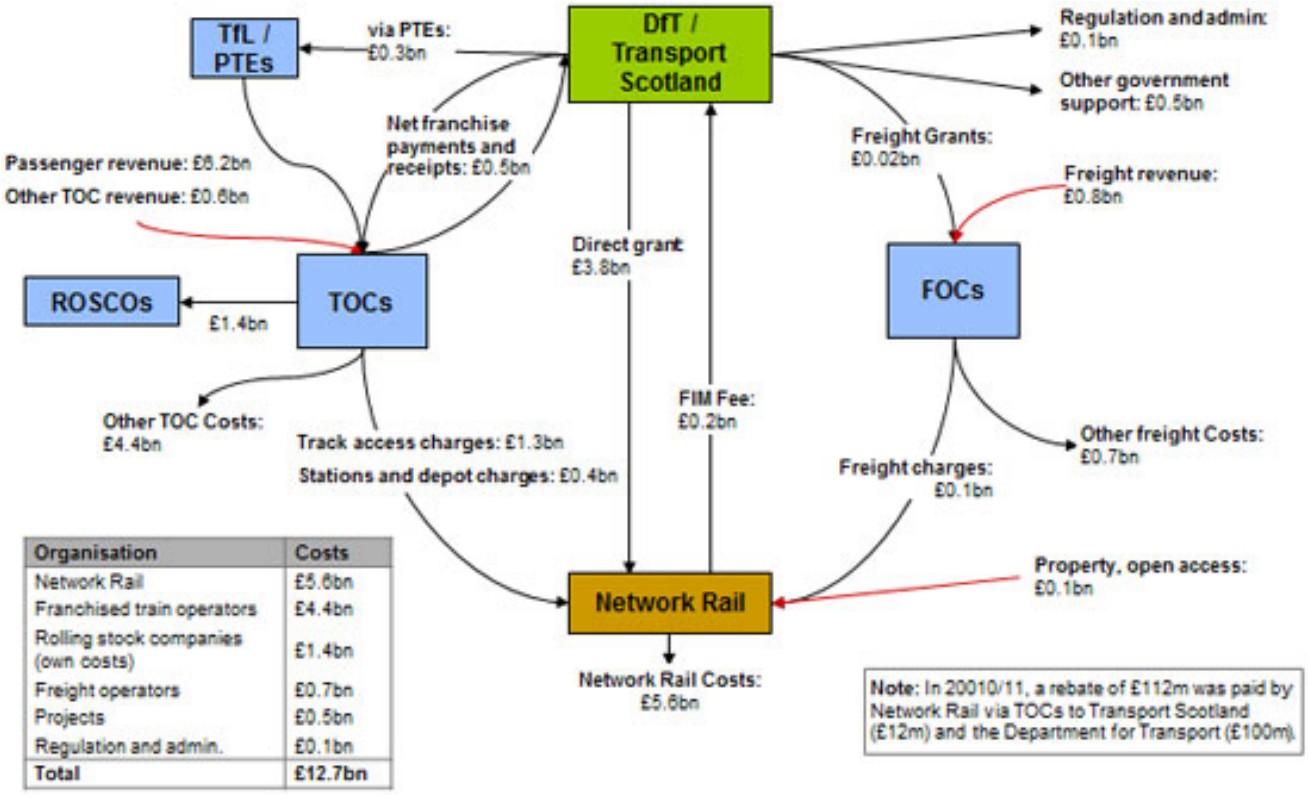
Study Area	Low case (£m)	High case (£m)
Industry objectives, strategy and outputs	90	110
Leadership, structures, interfaces and incentives	40	130
Revenue	90	90
Asset management and supply chain management	230	580
Programme management	40	100
Safety, standards and innovation	190	190
People	260	260
Double counts	(200)	(410)
Net funding savings	**740**	**1,050**

2.9. A key finding of the RVfM study (which is borne out by figure 2.2 below) was that inefficiency in the rail industry is essentially an industry-wide problem, driven as much by inefficient relationships *between* industry parties as by inefficiencies *within* any one party. The study emphasised the system nature of the railway, and the importance of the effective functioning of the interfaces between the different elements in that system. It is therefore clear that although Network Rail can, and must, improve its own efficiencies further, many of the proposed savings will have to be delivered in combination with other parts of the industry.

2.10. In September 2011, the industry's Planning Oversight Group ('POG' – which consists of Network Rail and representatives of passenger and freight train operators as well as suppliers) published two Initial Industry Plans ('IIPs')[6] one for England & Wales and another for Scotland. Together, these essentially contain the industry's response to the value for money challenge set out in the RVfM study and set out how the industry, working together, can reduce costs by 20% to 30% by the end of CP5 compared to 2008/09, without reducing outputs. Boxes 2.3 and 2.4 summarise some key outcomes offered in the IIPs.

[6] Both IIPs are available at: http://www.networkrail.co.uk/iip.aspx.

Figure 2.2: Outline of financial flows within the GB rail industry, Source: ORR,



Organisation	Costs
Network Rail	£5.6bn
Franchised train operators	£4.4bn
Rolling stock companies (own costs)	£1.4bn
Freight operators	£0.7bn
Projects	£0.5bn
Regulation and admin.	£0.1bn
Total	**£12.7bn**

2011

Box 2.3: What the IIP offers by the end of CP5 (for England & Wales) (Source: IIP)

The IIP offers a railway that, in England & Wales, could:

- with efficiency improvements and continued revenue growth, reduce the current annual net cost to the taxpayer to £1 billion (a 66% reduction compared to the end of CP4);
- provide an additional 170,000 seats at peak times for commuters on key urban networks, delivering a step change in the rail connectivity of major economic centres providing a stimulus to economic growth and development, and providing capacity to accommodate a 30% increase in rail freight;
- maintain high levels of reliability and focus on improving areas of poor performance which have a significant impact on users;
- better meet the needs of passengers in key areas such as journey information, comfort, and accessibility;
- maintain high levels of passenger, public and workforce safety while continuing to improve safety culture throughout the industry and reduce safety risk at level crossings by 50%; and
- contribute towards a lower carbon economy, delivering a reduction in the industry's CO_2 emissions per passenger kilometre by 25% and removing the equivalent of one million lorry journeys off the road per year, a reduction in CO_2 emissions of 500,000 tonnes per year.

Box 2.4: What the IIP offers by the end of CP5 (Scotland) (Source: IIP)

The IIP offers a railway, in Scotland, that:

- is more efficient and therefore more affordable to the taxpayer – the annual cost of the industry to the taxpayer could reduce by £72 million (10%) by the end of CP5 compared to the end of CP4;
- supports and stimulates economic growth through the efficient movement of people and goods into and between major economic centres;
- maintains high levels of reliability and focuses on improving areas of poor performance which have significant impact on users;
- better meets the needs of passengers in key areas such as journey information, comfort, and accessibility so that industry can make steps towards meeting its ambition to achieve 90% customer satisfaction;
- in the longer term maintains high levels of passenger, public and workforce safety while continuing to improve safety culture throughout the industry and reduce safety risk at level crossings by 50%;
- contributes towards a lower carbon economy, reducing industry's CO_2 emissions by 28% by the end of CP5.

2.11. We are currently reviewing the IIPs as part of our work to produce our initial view of the likely range of Network Rail's efficient expenditure for CP5. This will be a key component of our Advice to Ministers document which we will publish in March 2012 to help inform the two governments in producing their HLOSs and SoFA.

2.12. The current economic climate, with pressure on public and private finances, makes it all the more important for the industry to meet the value-for-money challenge. If the industry is going to do this, it must deliver the outcomes and outputs that customers, funders and society wish to see at an efficient cost. Improvements in efficiency create the scope to deliver more for less, but there will still be tough choices to be made in respect of the outputs and outcomes that customers and funders (both current and future) are prepared to fund. Through PR13 and our other tools, we will play a full part in enabling and encouraging efficiency improvements. We will also ensure that we clearly set out the trade-offs between different outputs and outcomes, and the cost of incremental outputs or outcomes, in describing the implications of different choices for future funding.

2.13. In late July 2012, the Secretary of State for Transport (on behalf of England & Wales) and the Scottish Government will set out the outcomes and high-level outputs they wish to see from the railway along with the funds available for delivering them when they publish their HLOSs and SoFAs. We will have regard to the HLOSs when as part of PR13we set out the outcomes and outputs that Network Rail must deliver during CP5.

2.14. We are keen to ensure that end-customer facing outcomes and outputs are reflected in the outputs that Network Rail is required to deliver. We also expect Network Rail to contribute, especially reflecting the HLOS, to the delivery of wider policy objectives such as economic growth, connectivity, and environmental sustainability. We want to understand how Network Rail's activity will deliver these outputs and outcomes. We are also keen to ensure that we use the most appropriate metrics in relation to these outcomes and outputs. We discuss this further in chapter 3.

2.15. Through PR13 we will ensure that Network Rail does everything it can to drive improvements in efficiency, directly in its own operations, but also indirectly through the industry. It will need to adopt innovative approaches, for example, by changing the way it works with its customers and with the supply chain. Through PR13 we intend to facilitate and encourage these innovative approaches.

2.16. Although our economic regulatory tools, particularly within a periodic review, are focused on Network Rail, we do have the ability to influence the wider industry. This influence in part reflects Network Rail's dominant position in the GB rail industry. By influencing Network Rail's behaviour in relation to its customers and suppliers, we can influence the industry beyond. We can also influence the wider industry more directly for example through our work on whole industry costings and TOC benchmarking. Overall, we intend to play a more active role in enabling the whole rail industry to work together to deliver improved value for money.

Transparency

2.17. Transparency is a key means by which we intend to influence the industry. By shining a light on the costs, revenues and the flows of funds in the industry, we will expose areas where improvement can be made, and help to facilitate best practice. In our view, the provision of information to customers and funders is important in helping them to make the right purchasing decisions and to put pressure on their suppliers (and indeed the whole value chain) to deliver the right goods and services at the right price.

2.18. We will be as transparent as possible about the information we have used in order to determine the outcomes and outputs that Network Rail must deliver, and the efficient costs of their delivery. We will shortly publish a document setting out our transparency strategy, which will set out the further work we are doing in this area. This will describe the scope of the information we intend to publish, and the underlying reasons for publishing individual data sets. This includes work on TOC benchmarking and whole industry costs. We welcome the inclusion in the UK Government's Autumn Statement of commitments to greater transparency in the rail industry[7].

2.19. In addition, we will publish our work on whole industry costs and on TOC benchmarking. This will facilitate a greater understanding of where costs lie in the industry and where there may be scope for greater efficiencies.

Market mechanisms

2.20. Market mechanisms have an important role to play in the rail industry. They reveal information, they allow transactions to take place that improve efficiency, and where there is competition they provide an incentive for market participants efficiently to provide what their customers want at a price they are willing to pay. As the economic regulator, part of our role is to ensure that rail markets work well to the benefit of customers, funders and society.

2.21. We have recently consulted on the extent to which more direct 'on-rail' competition between train operators for passengers is possible and desirable. In our recent document, we set out the benefits that we considered existing open access passenger operators had brought, including revenue growth and high levels of passenger satisfaction[8]. We set out for discussion possible changes to the way in which we approve access rights applications, and changes to the way in

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[7] Autumn Statement, HM Treasury, November 2011, available at http://cdn.hm-treasury.gov.uk/autumn_statement.pdf.

[8] http://www.rail-reg.gov.uk/pr13/consultations/orr017.php

which new passenger open access operators could be charged for access, which could increase the scope for more 'on-rail' competition. We will conclude on this in our forthcoming document setting out the regulatory framework for PR13.

2.22. For markets to work well, good quality information must be available for buyers and sellers to make the right decisions. We have already discussed the importance of transparency. It is important that markets work well throughout the value chain, including in the supply chains, for Network Rail, the TOCs and the FOCs.

2.23. We discuss below various aspects of industry reform. One reform currently being considered by Network Rail is the letting of concessions for the operation of some parts of its network. A further reform, discussed below is the creation by Network Rail of a construction project entity that would compete with other construction companies for the provision of services to Network Rail. We would welcome these moves, as they would reveal information about the efficient cost of network operation and construction, and could provide discipline on Network Rail.

2.24. Further, we are keen to maximise the extent of contestability throughout the value chain including through the supply chain. We discuss in chapter 3 whether we should focus on supply chain management as a key enabler of sustainable outcome delivery

2.25. Beyond our sectoral regulatory powers, we will use the full range of our competition powers, including under the Competition Act 1998 and the Enterprise Act 2002, to maintain and improve the functioning of markets throughout the rail industry. For example, in 2007 we referred the rolling stock leasing market, to the Competition Commission, and are monitoring the remedies put in place following that reference.

Localism

2.26. At present, most train services in Great Britain are procured centrally through either the Department for Transport (DfT) or Transport Scotland. Although DfT and Transport Scotland consult as appropriate with local and regional bodies when letting franchises, these bodies are not party to the decisions about costs and service quality that inevitably have to be made in a procurement decision of this kind.

2.27. Greater local involvement in train service procurement could help lead to the provision of services that better reflect local needs, and possibly more local funding for those services. In this way it could support the delivery of the outcomes we want to see achieved. Greater localism is currently being considered by DfT. Transport Scotland is also considering whether there is merit in providing opportunities for third parties to promote enhanced rail services and facilities as part of its 'Rail 2014 Public Consultation'.

2.28. Devolving decision making to local bodies has important implications for the approach we need to take in PR13. Firstly, transparency of costs at a local level will be a prerequisite for enabling these bodies to become truly financially accountable, but this is complicated by the mixed traffic nature of much of the network, and the fact that many local networks share capacity with longer distance traffic. Secondly, there may be a trade-off between local accountability and the desire to reduce industry costs: at present, there is a single procurement agency (e.g. DfT), and it is important that local bodies are able to benefit from scale economies where they exist, particularly through monitoring and enforcement of franchises.

Industry reform

2.29. Industry reform is a critical part of the context for PR13. Some aspects of industry reform are being led by the industry, including Network Rail; others are a matter for the Secretary of State and the Scottish Government. We will facilitate these reforms; indeed, PR13 will play an important part in implementing certain elements of industry reform. We must also ensure that our regulation, and specifically the PR13 settlement and the incentives it contains, is robust to possible changes made during CP5 and beyond. Wherever possible, we should further ensure that the effectiveness of our regulation is enhanced by these reforms.

2.30. We welcome the reforms currently being implemented by Network Rail. We are keen to maximise the potential of these reforms to improve the extent to which Network Rail provides value for money, including through improving the effectiveness of regulation.

2.31. The reforms being implemented include the devolution of decision making to route-level, with the creation of arm's length organisations within Network Rail to manage the operation of specific routes. This has the potential to reveal best practice within Network Rail, and to create greater incentives for management to learn from each other and compete to be the best within the business. It may also facilitate a more local focus, and more local funding arrangements focused on local outputs and outcomes.

2.32. Devolution also has potential implications for the way that we regulate, because it will allow us to make greater use of comparative regulatory techniques. The value of devolution, in regulatory terms, becomes greater as the degree of autonomy and independence at the route level increases. Clearly, it is important to ensure that it remains possible to manage traffic and plan engineering work on a network-wide basis. But devolution, alongside more effective central functions and appropriate coordination between the devolved entities, could deliver this more effectively than at present.

2.33. Beyond devolution, Network Rail is also considering letting concessions for the operation of parts of its network. If this were to provide a means of revealing the efficient cost of network operation, a means of providing independent comparators, we would welcome concessions as a means of increasing discipline on Network Rail.

2.34. A further reform being implemented in the industry is alliancing. We support alliances that improve the ability, and more closely align the incentives, of Network Rail and train operators to deliver value for money for customers and funders. It is important that these alliances do not result in undue preference or discrimination, and that those involved comply with the relevant legislative and regulatory obligations. Within that framework it should be possible to allow more bespoke arrangements that supplement the default terms in our model contract and standard access charges.

2.35. Network Rail has proposed to create within itself a construction project entity, which would compete with third party providers to supply construction services to Network Rail as a client. This could provide valuable market testing and competitive pressure on Network Rail in respect of construction. It may also potentially stimulate improvements in Network Rail's procurement and contract management. But we also recognise that there may be issues relating to incumbent advantage, which Network Rail will need to consider carefully.

2.36. A key driver of the way in which Network Rail responds to our incentives is its governance and financing structure. As in any company, these structures have a profound effect on company culture and management behaviour. As its parent company is a company limited by guarantee,

Network Rail has no shareholders. The company has no equity funding, and the discipline that shareholders would usually provide on management comes from the 100 members[9], none of whom has a direct financial stake in the company. In addition, the company is entirely funded by debt, all of which is currently guaranteed by the UK Government, which further weakens the incentives on the company. The settlement we put in place at the last periodic review was structured so as to enable Network Rail to issue unsupported debt at market rates. We did this on the basis that it would expose the company to a degree of capital market discipline. However, because of the economic instability since 2008, Network Rail has not yet issued any unsupported debt. We are consulting in this document about whether at PR13 we should again structure our settlement so as to facilitate this (see chapter 8).

2.37. Reflecting the fact that Network Rail's management does not face pressure from equity owning shareholders or bondholders with capital at risk, its network licence requires it to establish a 'management incentive plan' (MIP). The purpose of this is to ensure that the remuneration of Network Rail's senior staff is expressly linked to Network Rail's performance. We are able to set objectives which Network Rail must reflect in its MIP. In March 2011 we wrote to Network Rail to propose three objectives to strengthen the MIP to ensure that it incentivises delivery and outperformance of the CP4 output targets and efficiency assumptions and that the company improves the accountability and transparency of the MIP arrangements[10].

2.38. Network Rail could also implement changes to its governance. We understand the company is considering this, and we would welcome any changes that increase effective discipline on company management. We will shortly begin a consultation on whether the licence conditions in respect of Network Rail's corporate governance and executive remuneration are appropriately scoped and effective.

2.39. Whether and when Network Rail might become, in part, financed by equity is a decision largely for the UK Government. We discuss in chapter 8 the extent to which we should structure the PR13 settlement so as to facilitate this.

Franchise reform

2.40. The Secretary of State and Scottish Government are each considering reforms to franchising, with the aim of facilitating and encouraging improvements in value for money in the industry.

2.41. DfT issued a statement on franchising reform in January 2011[11]. It stated that forthcoming franchises will be of longer duration (typically 15 years) and less prescriptive than previously. It is also considering changes to Schedule 9 of the franchise agreements (or, in older agreements, clause 18.1) to increase TOCs' exposure to the impact of changes in Network Rail's access charges in new franchises. Crucially, this would create an incentive for TOCs to work with Network Rail to improve Network Rail's efficiency, as they would benefit from the lower access charges that would result. In our view, this change has the potential to deliver significant improvements in the alignment incentives through the value chain. It would also provide for an efficiency benefit sharing mechanism introduced through a periodic review to have effect for new franchises. Efficiency benefit sharing mechanisms are discussed in chapter 4. Essentially, they provide an incentive for train operators to help Network Rail improve its efficiency. The Secretary of State plans to issue a

[9] http://www.networkrail.co.uk/aspx/721.aspx

[10] High-level objectives for Network Rail's management incentive plan, Bill Emery, March 2011, available at http://www.rail-reg.gov.uk/upload/pdf/network_rail_mip_objectives_240311.pdf.

[11] Reforming Rail Franchising: Government response to consultation and policy statement, DfT, 2011

command paper on rail early in 2012. This will set out her response to the RVfM study, as well as providing clarity on the changes to industry structure that the government (in respect of England & Wales) wants delivered. We will work closely with DfT and take the command paper into account in PR13 as appropriate.

2.42. The Scottish Government is currently considering its response to the RVfM study. In particular, Transport Scotland is considering its approach to the next contract for passenger services in Scotland from 2014 onwards[12]. We will work closely with Transport Scotland and take account of its decisions as appropriate.

Changes to ORR's role

2.43. In the light of the whole-industry problems it identified, the RVfM study proposed extending our remit in certain areas. It suggested that, over time, we should become a whole-industry regulator for the railway.

2.44. In particular, we are supportive of incorporating policy areas into our remit where:

(a) They form part of the key transmission mechanisms between Network Rail (and its suppliers), and both the end users of the railway and its funders.

(b) There are clear reasons for favouring a regulatory approach over alternative approaches. In other words, we will need to demonstrate that we can add value in those areas where responsibilities are transferred over to us.

2.45. We will shortly be issuing, jointly with DfT, a consultation document on possible changes to our role in the light of the RVfM study recommendations.

The legislative environment

2.46. In all decisions that we make, including as part of a periodic review, we must operate within the framework of our statutory duties. These include a duty to have regard to the statutory guidance issued to us by the Secretary of State and the Scottish Ministers[13].

2.47. In addition, we must operate within the EU legislative framework, as it relates to railways. The Access & Management Regulations[14], which transposed parts of the EU's First Railway Infrastructure Package (FRIP), include a number of requirements relating to access charges and incentives[15].

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[12] Rail 2014 – Public Consultation, Transport Scotland, November 2011, available at http://www.transportscotland.gov.uk/strategy-and-research/publications-and-consultations/j203179-00.htm.

[13] The most recent guidance provided to us by the Secretary of State for Transport and the Scottish Ministers can be found in the 'related documents' section at: http://www.rail-reg.gov.uk/server/show/nav.94.

[14] The Railways Infrastructure (Access & Management) Regulations 2005.These were amended in 2009.

[15] These include, for example, obligations that:

(a) the infrastructure manager (i.e. Network Rail) establish a performance scheme to minimise disruption and improve performance;

(b) the infrastructure manager must ensure the application of its access charging scheme results in equivalent and non-discriminatory charges for different railway undertakings that perform services of an equivalent nature in a similar part of the market; and

(c) ORR provide the infrastructure manager with incentives to reduce the costs of providing the infrastructure and (accordingly) the level of access charges.

2.48. The EU is currently considering changes to the FRIP to make it more effective at achieving its stated objectives. This is likely to lead to the amendment of the Access & Management Regulations. We, with the industry, need to be mindful that this could impact both on PR13 and on industry reform more generally. We understand that changes to the FRIP are likely to be finalised and adopted by the EU in 2012. We are monitoring progress and will assess the implications for PR13 when the outcome of the review is clear.

3. Understanding the PR13 Objective

Key messages from this chapter

- We are minded to continue with the objective for PR13 that we proposed in our May consultation. This was to: protect the interests of customers and taxpayers by ensuring our determination enables Network Rail and its industry partners to deliver or exceed all the specified outcome and output requirements, safely and sustainably, at the most efficient levels possible comparable with the best railways in the world by the end of the control period.
- We want to ensure that PR13 delivers outcomes and outputs that passengers, freight customers, funders and society value.
- We have considered the available evidence on this and suggest that we should use PR13 to help deliver:
    - passenger satisfaction;
    - freight customer satisfaction;
    - economic growth'
    - connectivity;
    - environmental sustainability.
- Building on CP4, we recognise the need to ensure that Network Rail has key enablers in place to ensure sustainable delivery of outcomes over the long term. We propose the following as key enablers for CP5:
    - Excellence in health and safety and risk control (as per CP4)
    - Excellence in asset management (as per CP4)
    - Effective supply chain management, including procurement and contract management
    - Collaborative working across the industry.
- It is essential for us to understand the mechanism by which our incentives result in these outcomes. This involves understanding Network Rail's responses but also the response of Network Rail's customers, the TOCs and FOCs.

Introduction

3.1. The purpose of this chapter is to set out our current thinking on our objective for PR13, in the light of the responses we received to our May consultation. We also explore the question of who benefits from the railway, and therefore what outcomes we should focus on in PR13. In doing this, we draw out some of the trade-offs that exist between different outcomes, and consider the relationship between outcomes and outputs. We then move on to consider what the existing evidence tells us about the outcomes that passengers and freight customers value. We also consider the outcomes that wider society value, which underlie the provision of funds for the railway from the taxpayer.

Our overall objective for PR13

3.2. In our May consultation, we proposed that our overall objective for PR13 should be:

> "to protect the interests of customers and taxpayers by ensuring our determination enables Network Rail and its industry partners to deliver or exceed all the specified outcome and output requirements, safely and sustainably, at the most efficient levels possible comparable with the best railways in the world by the end of the control period."

3.3. We elaborated on this by stating how we proposed to achieve this objective and what the outcomes would be[16].

3.4. In response to our consultation, the majority of stakeholders who commented were supportive of our overall objective. However, a number of respondents commented or sought clarification on particular aspects of the objective[17], for example, in respect of trade-offs between different possible outcomes.

3.5. We recognise that, because it is a high-level objective, it may require some clarity on what it means in practice. We will respond more fully to the points made by consultees when we publish our regulatory framework for PR13 in 2012 and provide any necessary clarity then.

3.6. Given the widespread support for our overall objective, we are minded to retain it. We discuss below what our overall object could mean in terms of outcomes that customers, funders and society would value. We also discuss some of the trade-offs between different outcomes and between the interests of current and future customers and funders.

Who benefits from the railway?

3.7. Whether or not we use it ourselves, the railway plays a significant role in our day-to-day lives. It supports the effective functioning of businesses and the wider economy, which is critical to maintaining our quality of life. For those who use it directly, it provides an important means of shipping freight, it provides access to employment and education as well as opportunities for enjoyment through leisure activities. For those who use other transport modes, rail can provide benefits by helping those modes operate more efficiently. It also provides environmental benefits. In short, whilst rail serves many types of customer in various markets, the society as a whole benefits.

3.8. Passengers have a variety of reasons for traveling by rail. Their needs and wants, and the alternatives they have available to them, will vary depending on the purpose, regularity, distance and time-sensitivity of their travel. The needs and wants of the everyday commuter may be very different from those of the occasional leisure passenger, and the needs of the local service user may be very different from those of the long distance traveller. Many passenger services serve more than one market, depending on the areas they pass through, the time of day or even the season in which they operate.

3.9. The fact that the railway is a network means that the benefits that passengers enjoy from the railway are often interdependent. These interdependencies may be positive (e.g. people in one community benefit from being connected to people in another community) or negative (e.g. people travelling from A to C may suffer from overcrowding and slower journeys if the train stops at B en route).

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16 See paragraphs 3.5-3.12 of Periodic review 2013: first consultation, available at http://www.rail-reg.gov.uk/pr13/PDF/PR13-first-consultation-document.pdf.

17 The consultation responses are available at: http://www.rail-reg.gov.uk/pr13/consultations/orr013.php.

3.10. Freight customers, usually businesses, want to get their cargo from origin to destination as cost-effectively as possible. In doing this, freight customers may choose to use rail, usually for a part of an overall journey from origin to final destination. In many instances (with the exception of some heavy bulk loads) freight customers will have alternatives to rail, most likely road. The competitive pressure faced by freight operators means that they have to be responsive to their customers' needs and wants. Precisely what a freight operator requires to respond effectively (in terms of the locomotives wagons and train paths required) varies depending on the type of freight, the route and the customer.

3.11. Furthermore, the beneficiaries of the railway are not limited to people who travel by train or businesses that ship freight, but include non-users as well. Society as a whole benefits, for example, from shifting transport from road to rail as this brings environmental benefits, reduced congestion on roads, and reduces the number of accidents. Society also benefits from the railway connecting communities and supporting economic growth. Recognising these wider social benefits, government contributes substantial amounts of money to support the railway. So government, as a funder on behalf of society, is a beneficiary of the railway as well.

3.12. In some respects the interests of customers, funders and society are common and complementary. Everyone, for example, benefits from increased efficiency in the railway as this creates the possibility of achieving more of the outcomes we want using fewer resources.

3.13. However, there are often trade-offs between the interests of different beneficiaries. Passengers may, for example, want affordable ticket prices, while funders have to balance their desire to fund rail services with other calls on their funds. Given capacity constraints in some areas, it may not be possible to increase both passenger and freight services, or to increase the frequency of fast services whilst maintaining current stopping service levels. There may also be trade-offs between the different outcomes that each of the beneficiaries would look to see, and we discuss this further below.

3.14. There are also potential conflicts between the interests of current beneficiaries and those of future beneficiaries. Current customers and funders, for example, might be keen to keep prices and funding requirements as low as possible, but this may serve to increase the cost to future customers and funders (e.g. if more costs are put on to the Regulatory Asset Base) or degrade the quality of service for future customers (e.g. if costs are kept down now by reducing maintenance and renewals so that the capability of the network falls over time).

Understanding outcomes

3.15. Our approach to PR13 will be focussed on outcomes and outputs. For the purposes of PR13 we define these terms as follows.

(a) *Outcomes* are high level objectives that the industry's activities are intended to deliver, and represent what customers and society actually value. Outcomes will reflect the end-user's experience of the railway and are likely to result from the industry working together;

(b) *Outputs* are specific things that the industry delivers to achieve these outcomes.

3.16. Because *outcomes* tend not to be specific in nature, we set specific *outputs* that we believe are correlated to achieving the outcomes we want to achieve. By focusing on objective outputs, we leave scope for Network Rail to choose the most efficient combination of inputs and approaches to deliver them, and therefore to achieve the outcomes we want the industry to achieve.

3.17. Establishing credible outcomes and linking them to credible outputs is of critical importance in the regulatory process. If Network Rail meets the outputs we set for it, and these outputs do not lead to

corresponding improvements in outcomes that customers and society value, then PR13 will not have been effective.

3.18. In PR08, high level passenger outcomes, such as overall passenger satisfaction, were not incentivised directly. We opted to focus on outputs that were strongly correlated to the high level outcomes we wanted to achieve. As an example, we used measures on punctuality and reliability that feed into the PPM measure as these were closely related to passenger satisfaction, because it is relatively simple to monitor Network Rail's performance against such measures. Figure 3.1 below highlights the degree to which the outcome of passenger satisfaction (expressed through the overall passenger satisfaction measure in the National Passenger Survey) has tracked the output of reliability (expressed through PPM).

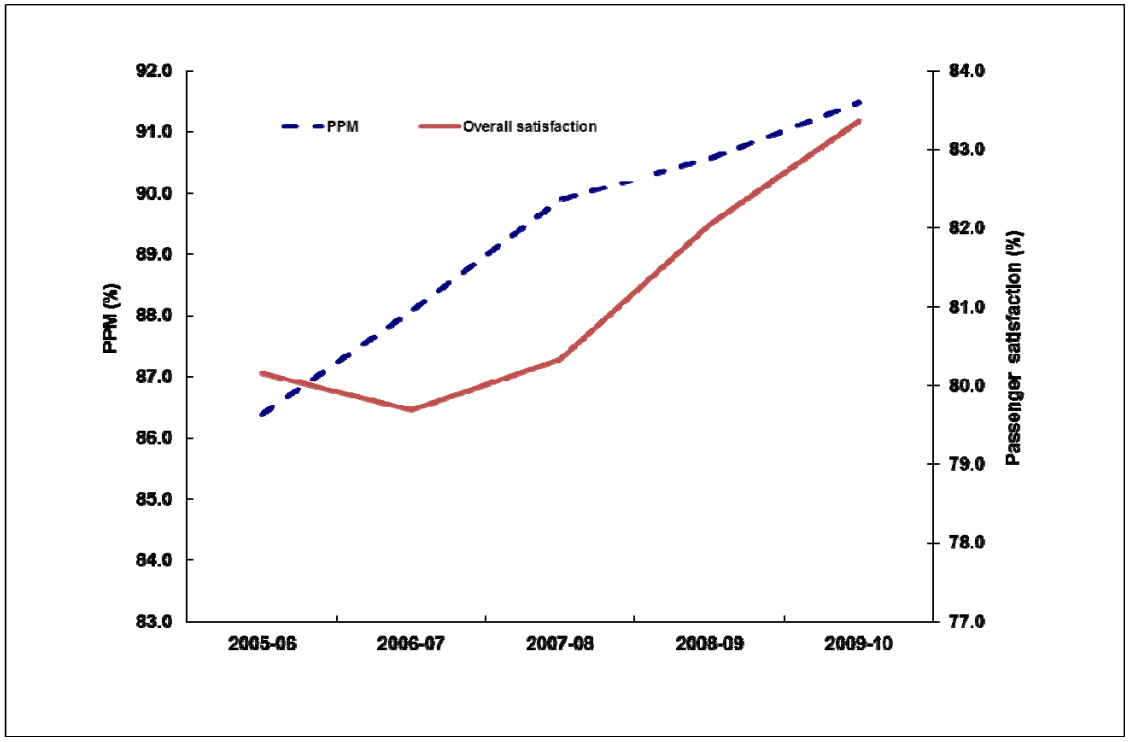


Figure 3.1: Comparison of overall passenger satisfaction and PPM 2005-06 to 2009-10, Source: Passenger Focus and National Rail Trends

3.19. The same is true for freight, although the outcomes that freight customers require tend to be more closely aligned with the outputs we set in the periodic review. In 2009 we conducted a survey of rail freight users[18] to establish levels of customer satisfaction, following on from similar surveys in 2000 and 2003, which showed that price, customer service and reliability of service were the key drivers of freight customer satisfaction.

3.20. In our May consultation, we asked whether our focus should be on outcomes (for example a new outcome target for customer satisfaction) or remain focused outputs. The responses we received supported the view that our focus should remain on output delivery, but that we should review what we focus on to ensure that this reflect the outcomes we want to achieve.

[18] http://www.rail-reg.gov.uk/server/show/nav.2453

3.21. The Secretary of State and Scottish Government will tell us what high level outputs they wish to fund through their HLOSs, in July 2012 and the funds they have available. One of our key roles in a periodic review is to assess whether the high-level outputs in each government's HLOS can be delivered within the funding envelope set out in the associated SoFA.

Passenger outcomes

3.22. The body of evidence regarding rail passengers' preferences is extensive.

3.23. A key source is the industry's Passenger Demand Forecasting Handbook (PDFH[19]). The PDFH provides guidance on estimating the impact of changes in key service attributes and external factors, including:

(a) Journey times;

(b) Service frequencies;

(c) Economic factors;

(d) Fares;

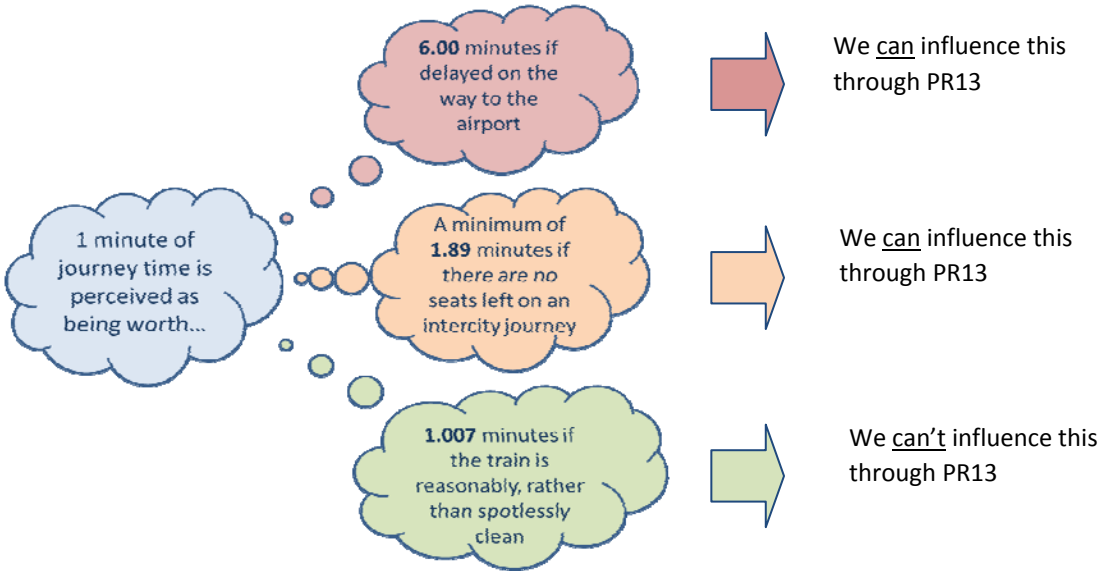
(e) Service reliability and service disruption (including bus replacement); and

(f) Station and rolling stock service quality measures.

3.24. The evidence is largely derived from revealed preference[20] and stated preference[21] market research and analysis.

3.25. The PDFH provides guidance on the relative value passengers place on different service characteristics. Figure 3.2 gives some examples of this, and highlights some of the areas where we can make a real difference through PR13.

Figure 3.2: Evidence on how passengers on average value different service characteristics, source: values taken from PDFH v5



[19] http://www.atoc.org/about-atoc/commercial-activities/passenger-demand-forecasting-council/the-passenger-demand-forecasting-handbook

[20] Revealed preference (RP) techniques take historic data on rail demand and try to isolate the effects of a given variable on demand over a given time period. The LENNON ticket sales database provides a strong source of data for carrying out historical RP analysis, and RP methods are often the starting point for estimating the impact of changes to the rail 'offer'.

[21] Stated preference (SP) statistical techniques are employed to provide forward-looking evidence on the relative importance that passengers attach to difference service attributes. SP surveys measure how people respond to a series of hypothetical (but realistic) trade-offs between service attributes to gauge the relative value that the respondents place on each attribute.

3.26. PDFH translates the values that passengers place on service characteristics into a forecast of demand for services in the event of these service characteristics changing. Demand determines service revenues, and hence the overall subsidy requirement and value-for-money of rail. It also determines the impacts on wider society, for example improvements that enable the frequency of commuter services to be increased can alleviate road traffic congestion at busy times, with benefits for the environment and the wider economy.

Box: 3.3 Market research by the rail industry

The rail industry has often been a leader in developing market research techniques to improve its understanding of the markets it serves. Both funders and the Passenger Demand Forecasting Council (PDFC) have allocated significant resources to researching passenger demand, including research into service attributes such as reliability and station facilities. Examples of recent PDFC research include improving the forecasting for Passenger Transport Executive (PTE) areas, for which the data have historically been poor.

Despite this extensive research programme, there are clearly some gaps in knowledge, particularly with regard to the relationship between economic growth and passenger growth, where the link between GDP growth and passenger demand appears to have weakened since 2008. Much of the problem would appear to be a lack of relevant data: the last significant fall in GDP was during the early-1990s recession, since when transport (and employment) market patterns have changed significantly.

3.27. The PDFH draws on extensive research to translate changes in rail services and rail fares into passenger demand. The impact varies significantly according to the characteristics of passengers – including the availability of other forms of transport. For example in urban conurbations outside London, a 10% increase in fares is estimated to reduce commuter journeys by 6%, business journeys by 5% and leisure journeys by 9%.

3.28. Guidance on passenger preferences and demand, in PDFH and complementary research, is used throughout the rail industry. For example, it is used to appraise the business case for enhancement options, underpinning the Route Utilisation Strategies (RUSs), the IIPs and HLOS. It is applied to develop revenue forecasts that are using by bidders for franchises, and to calculate the financial impact of changes to franchise and concession specifications. It underpins the payment rates we determine to compensate for service disruption[22] and in the economic analysis we undertake for certain track access applications[23].

[22] In Schedules 4 and 8 of the model passenger track access contract.

[23] Principally through our 'not primarily abstractive test' and associated cost benefit analysis.

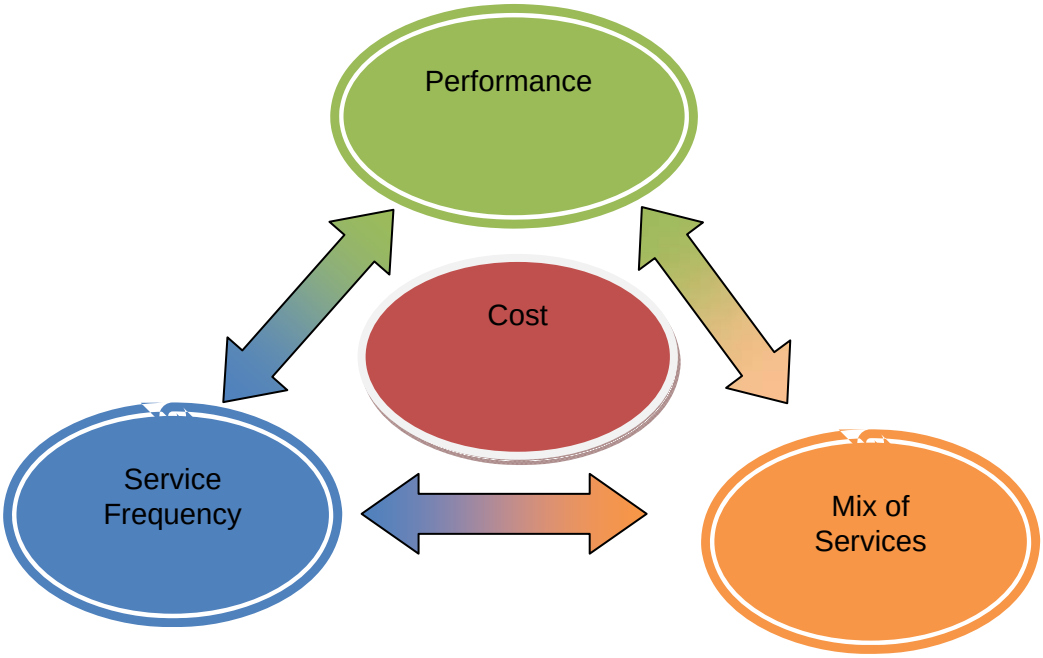


Figure 3.4: Some of the trade-offs involved in prioritising outcomes

3.29. In particular, demand forecasts help us to understand the benefits that each type of service produces where trade-offs exist between them. For instance, where there is a choice between increasing service frequencies, improving reliability and maintaining the mix of traffic carried on a part of the network, understanding the benefits produced by each attribute is important in informing the decision-making process.

3.30. Passenger Focus compiles two National Passenger Surveys (NPSs) every year. Each NPS provides a network-wide picture of how satisfied (or dissatisfied) rail passengers are with the services they use. They look, for example, at how satisfied passengers are with facilities at their local station and how well the train company deals with delays, by questioning over 27,000 people at over 700 locations. The NPS is an important source of information about how passengers experience travelling by rail. It is assembled at a disaggregate level, with a good deal of data being assembled on individual attributes of rail travel, and Passenger Focus is working on providing further disaggregation in future.

3.31. The NPS provides valuable insights into the drivers of both satisfaction and dissatisfaction for existing passengers. It has enabled DfT to evaluate the performance of TOCs against their franchise commitments, and has helped to inform the specification of individual franchises.

3.32. Unlike the PDFH, however, the NPS does not enable us to establish the relative weights that passengers attach to different service attributes.

3.33. In addition to the NPS, Passenger Focus carried out two stated preference studies on passenger preferences[24] in 2007 and 2009, and drew on the evidence from these studies that formed the foundation of their response to our May consultation (see table 3.5).

[24] Passenger priorities for improvement in rail services, Passenger Focus. 2007 and 2010

Table 3.5: National Priorities for Improvement, Passenger Focus, 2010

Service Improvement Preference	Score	2009 Ranking	2007 Ranking
Price of train tickets offer excellent value for money	1.08	1	1
At least 19 out of 20 trains arrive on time	1	2	3
Sufficient train services at times I use the train	0.98	3	2
Passengers are always able to get a seat on the train	0.86	4	4
Company keeps passengers informed if train delays	0.79	5	5
Information on train times/platforms accurate and available	0.75	6	7
Maximum queue time no more than two minutes	0.69	7	6
Trains consistently well maintained/ excellent condition	0.69	8	8
Seating area on the train is very comfortable	0.67	9	9
Station staff are available whenever required	0.67	10	17

3.34. These studies suggest that price and value for money of train tickets are passengers' top priority, with punctuality, service frequency, the availability of seating and passenger information in the face of disruption also being highly valued by passengers. These preferences are broadly consistent for all types of journey purpose, so these attributes can reasonably be described as being core passenger expectations.

3.35. Journey time improvements do not appear to be a key priority for existing passengers. But they may be important for future customers and for society as they could extend rail's reach into new markets (and build on existing markets), and therefore deliver the outcomes that funders require from the railways.

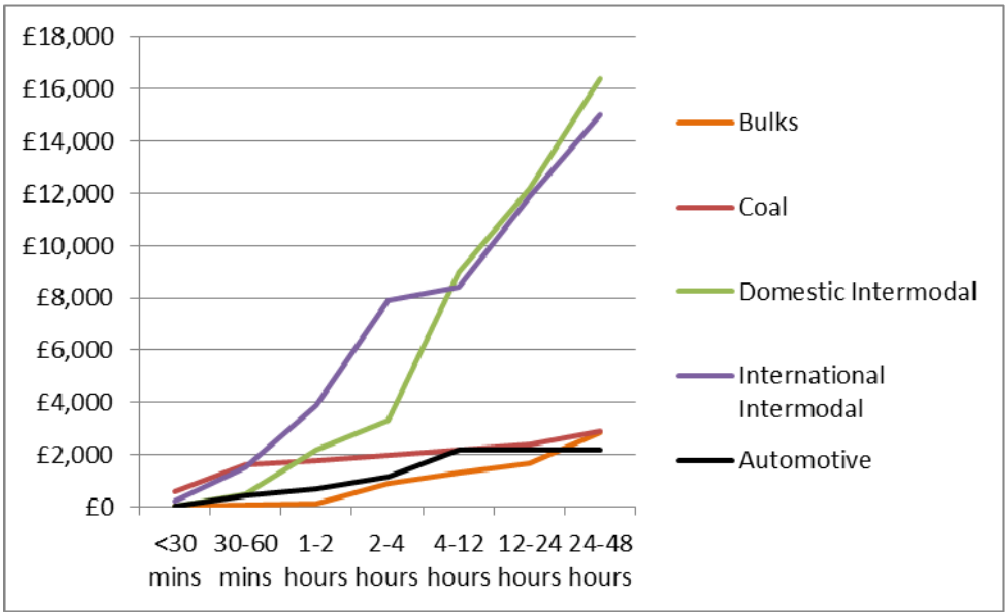
Freight customer outcomes

3.36. There is much less research evidence relating to freight customers' preferences. This is partly a reflection of the difficulties of carrying out market research on freight customers (they are fewer in number, more diverse and often view their transport arrangements as being commercially sensitive). In addition, as government does not support freight services directly[25], there is perhaps less need to research these preferences in order to maximise the value of public funding.

[25] Freight facilities grants have been directed at benefits to environment / road congestion, rather than customers, and are therefore channelled through operators.

3.37. Freight operators argue strongly that they understand their customer preferences and represent them in their dealings with us. To the extent that they operate in well-functioning competitive markets, we recognise that this will be the case. Nevertheless, in developing the PR13 incentive framework, it is helpful for us to have an understanding of the relative strength of different passenger and freight customers' preferences. Research evidence in this area includes values of time[26] and service reliability by commodity, as well as sensitivity to price[27]. For example, as figure 3.6 below illustrates, the value of an unscheduled one hour delay for an international intermodal train is estimated to worth over twice as much as an equivalent delay to a coal train.

Figure 3.6: Average values of unexpected lateness (£s per train) by traffic type, Source: Rail Freight User Values of Time and Reliability, ORR, 2010



Societal outcomes

3.38. We have noted above that the network nature of the railway means that the benefits enjoyed by different end-users are interdependent. Beyond this, the railway also provides benefits to those who do not use it.

3.39. When people transfer from congested roads to rail, road space is freed up, either enabling others to use it (enabling more people to access jobs and services) or reducing journey times for those already using the roads . The passenger railway may only serve 8.2% of the total transport market in Great Britain by distance travelled[28], but that 8.2% is mainly focussed on the most congested parts of the road network, where the marginal impact of a reduction in rail traffic is likely to have the most effect.

3.40. Car users do not incur the full cost of the congestion that they impose on others. This means that when people shift from road to rail, it is likely to lead to a net economic benefit in the form of reduced road journey times. In a similar way, moving freight from road to rail produces both economic and environmental

[26] Rail freight user values of time and reliability: final report by AECOM, 2010 at: http://www.rail-reg.gov.uk/server/show/nav.2254

[27] Impact of track access charge increases on rail freight traffic, MDS Transmodal, November 2006. This document can be accessed at http://www.rail-reg.gov.uk/upload/pdf/mds-freight-nov06.pdf.

[28] Reference: PDFH 5.0, ATOC

benefits. In 2009, the DfT estimated the value of mode shift for freight away from road to be worth £0.86 per mile[29] on certain high value parts of the motorway network[30].

3.41. Linked to this, the railway supports economic growth by facilitating labour mobility and by reducing the effective distance between individual firms and between firms and their customers. Improving overall journey times can therefore have a positive impact on the potential output of an economy. DfT and Transport Scotland have both produced guidance for assessing the wider economic benefits of transport investments[31].

3.42. More widely, railways also fulfil an important social need by providing connectivity to people that helps them access jobs and services. Additionally, through modal shift, travel becomes safer. Rail is a safer form of transport in terms of the risks posed to travellers: car travel has been estimated to be 30 times more dangerous on average than making a rail journey of the same length[32]. And in addition, where people and freight transfer from road to rail this also provides an environmental benefit in which we all share.

3.43. Where individuals and firms choose to use rail, they do so because the price they are asked to pay for the service being offered represents better value to them than either using alternative modes of transport or not making the trip (or delivery) at all. They do not take account of these wider societal benefits. Subsidy can be used to increase rail use and ensure these societal benefits are realised.

Customer and societal outcomes for CP5

3.44. In summary, the research carried out in both the passenger and freight markets provides us with quantitative evidence of what drives demand and customer benefits on the railway. There is also some evidence of the wider societal benefits that the railway generates.

3.45. In the light of the evidence and discussion above, we could use PR13 to incentivise Network Rail to deliver the following outcomes, or contributions towards them:

(a) Passenger satisfaction;

(b) Freight customer satisfaction;

(c) Economic growth;

(d) Connectivity; and

(e) Environmental sustainability.

3.46. If we were to encourage Network Rail to work towards these outcomes, we would need to consider how best to measure progress. In respect of passenger satisfaction, for example, we currently use the PPM measure but would like to consider whether a more overall measure of satisfaction, such as the National Passenger Survey would be appropriate. We note that some franchisees are incentivised against National Passenger Survey targets. We are keen to understand how any such measures applied to Network Rail would interact with targets faced by franchisees. Noting the localism agenda, we are also keen to explore the extent to which it would be practical and desirable to measure and monitor the delivery of outcomes at a local level.

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[29] In 2009 prices.

[30] http://www.dft.gov.uk/publications/environmental-mode-shift-benefit-values/

[31] http://www2.dft.gov.uk/pgr/economics/rdg/webia/ and: http://www.transportscotland.gov.uk/stag/home.

[32] http://www.rssb.co.uk/SPR/REPORTS/Documents/ASPR%202010-11%20Final.pdf

3.47. We would also need to consider how best to incentivise Network Rail to make progress in respect of these outcomes. We note that although Network Rail may not be solely responsible for delivering these outcomes, their central position in the industry makes them well placed to encourage the cross-industry working that would be required. We are therefore not currently sympathetic to arguments that we should apply incentives to Network Rail only in respect of those outcomes that are totally within the company's control.

3.48. In our view, in order to achieve sustainable delivery of these outcomes, there are likely to be key enablers that Network Rail will need to ensure are in place. At PR08 we incentivised Network Rail to put in place a series of key enablers. We are keen to take a similar approach in CP5. Building on the approach we took in CP4, the following could be considered as key enablers for the delivery of the outcomes set out above:

(i) Excellence in health and safety and risk control (as per CP4)

(ii) Excellence in asset management (as per CP4)

(iii) Effective supply chain management, including procurement and contract management

(iv) Collaborative working across the industry.

Outcomes and outputs in CP4

3.49. In PR08, network reliability was one of our key concerns. The HLOSs set targets for levels of reliability (expressed in PPMs) for each traffic type (long distance, London and south east and regional for England and Wales, and a separate measure for Scotland). We set maximum levels for passenger and freight train delay minutes that were attributable to Network Rail and trajectories for network availability (the "seven day railway") for the condition of stations through the station stewardship measure that were enforceable through Network Rail's licence.

3.50. In PR08 we set out the minimum outputs we require from Network Rail during CP4. These are summarised in Table 3.7 and include top-level regulated outputs set by ORR, and disaggregated outputs defined in Network Rail's CP4 delivery plan. Further information on the outputs we require from Network Rail is contained in Annex C of our May consultation[33]:

Table 3.7: Outputs we are monitoring Network Rail against in CP4, source ORR

Output	Measure	Network Rail or cross industry
Safety	3% reduction in risk of death or injury from accidents on the railway for passengers and rail workers	Cross industry, with Network Rail responsible for delivering its own contribution
	Specified improvements in Public Performance Measure (PPM) for passenger train services	Network Rail and train operators

[33] For further details on the minimum outputs we require from Network Rail in CP4, see Appendix C in *2013 Periodic Review: First Consultation Annexes*, available at http://www.rail-reg.gov.uk/pr13/consultations/orr013.php.

	Specified reductions in cancellations and significant lateness for passenger train services	Network Rail and train operators
	Maximum levels of passenger and freight train delay minutes for which Network Rail is held responsible	Network Rail
Network capacity	Specified enhancement schemes	Network Rail
	In England and Wales, capacity measures for urban areas, London termini and 23 strategic routes	Network Rail
	In Scotland, specific improvements such as Paisley corridor improvements, Airdrie to Bathgate scheme.	Network Rail
Network capability	Maintain network capability	Network Rail
Network availability and the 'seven day railway'	Reduction in the disruption to passengers cause by planned engineering activities such that by 2013-14 there is 37% less than the base year (2007-08)	Network Rail
	No increase in disruption to freight services caused by planned engineering activities	Network Rail
Stations	Maintain average station condition scores within each station category A to F across the network, and to maintain average station condition across all categories in Scotland	Network Rail
Depots	Maintain average condition of deports as set out in CP4 delivery plan	Network Rail
Asset serviceability and sustainability	Extensive dashboard of indicators, including both condition forecasts and activity plans set out in its CP4 delivery plan	Network Rail
	Progress in delivering its proposed renewal volumes	Network Rail
Environmental sustainability	Environmental sustainability outputs committed to in Network Rail's CP4 delivery plan	Network Rail

3.51. We recognise that whilst setting targets through specified outputs can be (and on the whole is) beneficial in driving benefits that passengers, freight customers and funders value, they can also create perverse incentives where their delivery works against the delivery of the outcomes that customers actually want to see. We recognise the risk that by specifying and monitoring delivery of an output, Network Rail will focus on delivery of this output to the detriment of other unspecified outputs or improved outcomes overall.

3.52. For instance, in respect of network availability, Network Rail was incentivised in CP3 to cut the costs of engineering work and did so by taking much more possession time, which caused disruption. For CP4, in PR08, we therefore set a new target to cut down the disruption from planned engineering work and it fell sharply.

3.53. At PR08 we recognised that it was important not only for Network Rail to deliver outputs in CP4, but also to ensure that it improved its capabilities to deliver sustainable, efficient outputs over the long term. As noted in paragraph 3.48, we identified a series of key enablers that we considered were necessary for the company to do this.

Transmission mechanisms

3.54. In order for incentives we design and implement to be efficient and effective in achieving their intended effect, we need to take into account of the mechanism by which those incentives are passed from us to people making the decisions on the ground. This is known as the 'transmission mechanism'. Company culture is clearly important, and we need to understand this when we design incentives, both in terms of how companies respond internally to the incentives we impose on them, and in terms of how the incentives change their relationships with others in the industry.

3.55. Network Rail's governance and financial structure will have a significant effect on the way in which it responds to our incentives. To some extent, the Management Incentive Plan (MIP) replicates the profit incentive that drives shareholder-owned companies. It creates an incentive on management to deliver efficiency savings and thereby creates an incentive on them to outperform the periodic review settlement. But it could still be argued that Network Rail's governance and financial structure make it less responsive to financial incentives and, in particular, less responsive to the incentive from potential upside, than a shareholder-owned company would be. It could also be argued that it makes the company more risk averse than a company with different governance and finance structures might be.

3.56. At a periodic review, we set access charges that the train operators must pay to Network Rail for using the network. However, government can choose to convert a proportion of the access charges to be paid by train operators into a grant which it pays direct to Network Rail. Whilst the network grant does not change the net funding Network Rail receives, it has important behavioural impacts, and arguably makes it less focused on its direct customers – train operators – than it should be. In 2009/10, for example, around two thirds of Network Rail's revenue was received in the form of network grant. The RVfM study recommends abolishing network grant to ensure that Network Rail receives all its funding through train operators. It is hoped that this will improve Network Rail's customer focus, and help drive better value for money. We support this, but acknowledge that funders may wish to retain network grant, for example as a result of government accounting rules.

3.57. It is important for us to understand how the way in which we regulate could influence the development of Network Rail's governance and financing structure over time. We should not regulate in ways that preclude changes that would increase the effectiveness of our incentives.

3.58. We must also ensure that the incentives we put in place through PR13 are robust to possible changes to Network Rail's governance and financing structure through CP5. These changes may include, for example, the reform of the membership structure, the introduction of private sector capital through unsupported debt or through concessions, and the conclusion of alliancing agreements (as discussed in chapter 2.)

3.59. Regulation itself can have a significant impact on the culture of companies. For example, if we were to take a more input-focussed approach to regulation, or if we became too prescriptive about the outputs that Network Rail needed to deliver and how it should deliver them (for instance, by considering them in isolation rather than in the round), we could create what is often characterised as a 'parent-child' relationship with the regulator. In short, we have to take care in setting outputs that we do not disempower management and stifle innovation.

3.60. Network Rail is the provider of a major 'wholesale' input into the rail industry. For instance, it sells access to track to other companies who use it together with other wholesale inputs, such as rolling stock and staff to provide services to end-customers. The outcomes that passengers, freight customers and society experience are largely the result of how Network Rail's immediate customers employ those wholesale inputs to produce the products that their customers want and are willing to pay for. It is important for us to understand not only how Network Rail responds to our incentives, but also how Network

Rail's customers respond to changes in Network Rail's behaviour and how this is transmitted into what end-customers and society experience.

3.61. This transmission mechanism will be significantly affected by the nature of the markets in which passenger and freight operators operate. To a large extent, freight operators face competition from other rail freight operators or from road, and the nature of that competition will affect how they respond to changes in Network Rail's behaviour. Franchised passenger train operators face competition from other modes to varying degrees, but their response to changes in Network Rail's behaviour will in large part be driven by the franchise agreements they have with DfT and Transport Scotland. Changes to franchise agreements are matters for the Secretary of State (in respect of England & Wales) and Scottish Governments. We will work with DfT, Transport Scotland and the TOCs to ensure that we understand their impact on the efficiency and effectiveness of our incentives.

3.62. We are undertaking further work with Network Rail to understand better the transmission mechanism. We hope in due course to extend this in to a broader cross-section of industry players.

Questions

3.63. For this chapter, we are seeking views on the matters set out in the box below.

Chapter 3: Questions for stakeholders

Q3.1: Do you agree that in PR13 we should focus on incentivising delivery of outcomes that customers, wider society and funders value?

Q3.2: Do you agree with our assessment of the outcomes that customers and society value?

Q3.3: How do you see the trade-offs between and within the interests of customers, funders and society? How do you see the trade-offs between current and future customers, funders and society?

Q3.4: To what extent do you think we should measure and monitor the delivery of those outcomes and outputs we incentivise? What metrics should we use? To what extent is it practical and desirable to monitor delivery of outcomes at the local level?

Q3.5: What do you see as the key enablers for Network Rail's successful delivery of outcomes in CP5? How should we best measure Network Rail's performance against these enablers? How should we best incentivise these?

Q3.6: What do you see as the key features of the transmission mechanism? How do Network Rail's customers respond to changes in Network Rail's behaviour and how does this translate into the experience of end-customers and society? How should we take this into account in the design and implementation of our incentives?

Q3.7: How do you think industry reform would affect the transmission mechanism? How do you think changes to franchise agreements would affect the transmission mechanism?

PART B

Part B contains:	
Chapter 4	Aligning Network Rail and train operators' incentives to increase efficiency
Chapter 5	Possessions and performance regimes
Chapter 6	Access charges
Chapter 7	Capacity utilisation incentives
Chapter 8	Network Rail's cost of capital and financing
Chapter 9	The incentive properties of opex and capex cost recovery
Chapter 10	Other incentives

4. Aligning Network Rail and train operators' incentives to increase efficiency

Key messages from this chapter

- Under the current industry structure, train operators are to a large extent protected from changes to Network Rail's fixed costs. By partially exposing operators to these costs, we consider that there are significant opportunities for train operators to help increase Network Rail's efficiency.
- We do not think that removing franchise operators' financial protections in relation to Network Rail's charges is the most effective solution, because the charges vary considerably according to changes in methodology and scale of the Network Grant.
- Instead, we propose a mechanism that would share Network Rail's efficiency outperformance and underperformance with train operators at the level of each Network Rail route. This would replace the existing efficiency benefit sharing mechanism. The chapter and annex provide details regarding our proposal.
- We also propose a mechanism by which train operators share a proportion of changes in Network Rail's operating, maintenance and amortised renewal costs as determined at subsequent periodic reviews.

Introduction

4.1. This chapter sets out options for addressing the lack of alignment in the incentives of Network Rail and train operators and the increasing the focus on cost reduction that the RVfM study highlighted would be needed to improve value for money in the rail industry.

4.2. The main focus of this chapter is a proposal for developing the existing national efficiency benefit sharing mechanism to address more effectively the issue of misaligned incentives in respect of efficiency. This would take the form of a 'default' mechanism that would be established between all train operators and Network Rail at a Network Rail route level. As part of this proposal we also discuss how bespoke arrangements may complement or replace the mechanism. Our proposal builds on what we discussed in our May consultation and further subsequent engagement with the industry.

4.3. We recognise that alignment of incentives may in some cases be best achieved through closer, formal alliances between Network Rail and train operators. We discuss how the incentive framework we establish might apply in that context.

4.4. The rest of this chapter is structured as follows:

(a) it first discusses the current situation;

(b) it then sets out options for improving alignment of these incentives, as described in our May consultation; and

(c) it then gives more details regarding the options that we propose to consider further as part of PR13, which are:

(i) a route-based efficiency benefit sharing mechanism; and

(ii) a mechanism to expose train operators to Network Rail's costs as determined in a periodic review.

4.5. Annex B sets out issues relating to a route-based efficiency benefit sharing mechanism in more detail. It also presents the analysis we have undertaken regarding the risks and impacts of alternative mechanisms.

The current situation

The problem we are seeking to address

4.6. Network Rail is a monopolist in respect of many of the services it provides. It does not face the pressures that companies in competitive markets face efficiently to provide what their customers want at a price they are willing to pay. Hence we incentivise Network Rail to provide what its customers, funders and society want, and to do so efficiently, using our regulatory tools. In particular we do this through the framework we establish during our periodic reviews of Network Rail's access charges.

4.7. In a normal competitive market, when a company reduces its costs its customers benefit as a result of the lower prices they receive. There are therefore natural incentives in place for customers to work together with the company to help reduce its costs and for the company to encourage them to do so. In the rail industry these natural incentives are not effective. Indeed, under the current regulatory framework, Network Rail's customers are to a large degree indifferent to its costs. Principally this is because:

(a) under the financial adjustment mechanism ("Schedule 9") in franchise agreements, franchised operators have a high degree of protection against the financial impact of changes to access charges we make at a periodic review (reflecting changes to Network Rail's costs); and

(b) charges for open access passenger and freight operators are designed to cover only direct costs, such as wear and tear costs.[34] These operators do not bear charges that reflect Network Rail's, much larger, fixed costs; and

(c) the nature of the franchise bidding process means that Network Rail's costs are to a large degree passed through to government (through changes in premium or subsidy).

4.8. However, there are cases where train operators have been fully exposed to costs, notably freight operators' exposure to variable charges, train operators' exposure to traction electricity prices, and through operators being able to opt to pay for electricity through on-train metering. In these cases they have put considerable effort into investigating and challenging Network Rail's costs and efficiency.

4.9. Train operators engage with Network Rail on a daily basis on operational and planning issues. We consider that an alignment of their incentives would increase Network Rail's efficiency because train operators:

(a) have access to information regarding Network Rail's working practices and costs. They can therefore challenge Network Rail directly, giving it less scope to live the "quiet life" of a monopolist;

[34] With the important exceptions of ESI coal and spent nuclear fuel that bear their allocation of costs of freight only lines.

(b) could share their observations with us. Armed with better information, we would be able to regulate Network Rail more effectively, for example by having greater confidence in the efficiency baseline we set;

(c) can cooperate with Network Rail to save costs, for example by agreeing on specific access arrangements (including possessions) or by sharing some activities that are duplicated; and

(d) can advise on the scope of renewals and enhancement projects, ensuring that they are not "gold plated", i.e. more expensive than they need to be, but are directed at delivering value for money to the railway's customers.

The efficiency benefit sharing mechanism

4.10. In PR08, we introduced an efficiency benefit sharing mechanism (EBSM) to help address this problem. The aim of the EBSM is to encourage train operators to work with Network Rail to reduce its costs and thus incentivise greater efficiency. The EBSM provides for operators to share in any outperformance achieved by Network Rail.

4.11. EBSM was implemented at the start of CP4 through Schedule 7 of each track access contract[35]. It operates on the following basis:

(a) it covers operating, maintenance and renewals expenditure (renewals expenditure is not amortised for the mechanism) and certain revenue items, including property revenue; and

(b) each year, as part of our annual assessment of Network Rail's efficiency[36], we measure the extent to which Network Rail has outperformed its efficiency target relative to the financial baseline that we set in our PR08 determination;

(c) Network Rail shares 25% of any outperformance with train operators. This 25% is shared between operators in proportion to the revenue Network Rail receives from each operator in the form of variable track access charges (this is calculated separately for England & Wales and Scotland, with the outperformance in the two areas being allocated on this basis).

(d) in order to qualify for any payments, train operators are required to demonstrate that they have engaged positively with Network Rail to help drive efficiency improvements.

4.12. Whilst it has only been in operation for less than three years, we are conscious that the effectiveness of EBSM could be improved. In particular:

(a) under Schedule 9, operators whose franchises were established prior to the PR08 determination do not receive payments;

(b) as the mechanism is applied at a national level (in each of England & Wales and Scotland), the relationship between the effort made by individual train operators and the pay-off they receive is weaker than if, for example, it operated at a route level.

4.13. For 2009-10, we assessed that Network Rail had not outperformed. For 2010-11, the margin of error in measuring Network Rail's efficiency has been such that, as yet, we have been unable to confirm the extent of any outperformance. We are working with Network Rail and the independent reporter, Arup, to

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[35] Schedule 7 of: the model passenger contract (see http://www.rail-reg.gov.uk/server/show/nav.202) and model freight contract (see http://www.rail-reg.gov.uk/server/show/nav.2006).

[36] Annual efficiency and financial assessment 2010-11, ORR: http://www.rail-reg.gov.uk/upload/pdf/nr_annual_asessment_2010-11.pdf

resolve the technical issues underlying this uncertainty early in 2012. If we confirm outperformance, we can approve payments by Network Rail.

4.14. The measurement of Network Rail's efficiency is fundamental to its regulation. As envisaged by our PR08 determination, we are shortly due to commence a review of the EBSM, and will look to refine the measurement of efficiency further as part of this. We consider the increased prominence that the EBSM gives to the annual measurement of efficiency to be a positive consequence of the mechanism.

Options to improve alignment

Our May consultation

4.15. In our May consultation, we set out two different types of approach for improving the alignment between train operators and Network Rail to increase efficiency[37]. For the options to be effective for franchise operators, they require the support of the relevant franchising authority, in particular through reform of Schedule 9. The options are set out below.

4.16. One set of options take the form of normalising the customer / supplier relationship by exposing customers (train operators) to suppliers' costs through the charges they pay. In particular we discussed:

(a) through changes to Schedule 9 of the franchise, exposing franchised operators to changes in the variable usage charge (which reflect track wear and tear costs);

(b) exposing train operators to changes in (a proportion of) the fixed track access charge;[38] and

(c) we also considered an option to expose operators to changes in a proportion of Network Rail's operating, maintenance and renewal costs. Whilst the underlying principle is the same, this would have an advantage over (a) and (b) above in that it would not be sensitive to changes in charging methodology.

4.17. Charges are determined at a periodic review, and are only adjusted to reflect Network Rail's efficiency and other elements at the start of each control period. [39]Therefore, operators' actions to reduce costs may only translate into lower charges some years later.

4.18. Another (potentially complementary) option we proposed was to develop a revised efficiency sharing mechanism in light of experience gained from the mechanism that we implemented in PR08. We proposed that this mechanism should function at Network Rail route level rather than on a national basis as the EBSM does. This, in contrast to options relating to charges set out above, would expose train operators to Network Rail's costs on an annual basis.

4.19. In our May consultation, we stated that we support the principle of bespoke deals between Network Rail and train operators (in this context, relating to cost and potentially revenue sharing). We considered that stronger incentives were needed for Network Rail and operators to work together to reduce cost and increase revenue and suggested that alignment of incentives with respect to enhancement projects might

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[37] This is set out in the May consultation annexes, paragraph D61-D85, http://www.rail-reg.gov.uk/pr13/PDF/PR13-first-consultation-annexes.pdf

[38] A lump sum annual payment, currently payable by franchised operators, set to meet the net revenue requirement taking account of, amongst other things, Network Rail's fixed costs, financing costs, income, and the size of the Network Grant it receives from government.

[39] The fixed charge is a revenue cap, and is fixed in advance for several years. In principle the variable usage charge could be adjusted more regularly under certain narrowly defined conditions, but are typically set for the control period (with the exception of the coal spillage charge which is being reviewed and potentially adjusted annually on the condition that it cannot increase).

best be achieved through bespoke arrangements. We would support bespoke arrangements where they improved the alignment of such incentives.

4.20. In addition, we noted that Network Rail can influence train operators' costs, for example through its decisions regarding the timetable. We consulted on whether Network Rail should be exposed to operators' costs through an equivalent efficiency sharing mechanism. [40]

4.21. Following our May consultation, we have been challenged on whether we have considered a sufficient range of approaches to incentivise train operators to help reduce Network Rail's costs. In response to this, we discuss further options below and explain what work we and others are doing in this area.

Developing policy subsequent to the May consultation

4.22. We are grateful to those who responded to the issues we raised in our May consultation in this area and to those who attended our workshops and have met with us bilaterally to discuss these issues in more detail. We will respond fully to the points made in our forthcoming document setting out the regulatory framework for PR13. Table 4.1 gives an overview of the responses we received to the options we presented in our May consultation. It also sets out our comments on these and our proposed next steps.

4.23. As Table 4.1 sets out, we are proposing to consider two options further as part of PR13:

(a) a route-level efficiency benefit sharing mechanism; and

(b) a mechanism that exposes operators to Network Rail's costs through the periodic review.

[40] This approach is discussed in more detail in the May consultation annexes, paragraphs D74-78, which can be accessed through the link above.

Table 4.1: Options from the May consultation for aligning incentives to improve efficiency

Options	Consultees' views	ORR's response	Next steps
Exposure to variable charges	Responses were mixed, with around half supportive and half opposed. A number of stakeholders argued that franchise bidders would require additional subsidy to compensate for the associated risk and also noted that this would require significant changes to franchise agreements.	This charge is quite small and hence exposure is quite small. But it is not likely to translate into benefits to government, at least directly, because savings will accrue to operators.	We do not consider this to be a priority for reform, but we will support franchising authorities in the reform they wish to make in this area.
Partial exposure to fixed charge		We recognise that a high level of exposure would be problematic due to the costs of the associated risk for operators.	Due to its wide range of influences, we do not consider exposure to the fixed charge to be the most effective mechanism for aligning incentives.
Exposure to Network Rail's costs at periodic review		The right balance between risk and incentive would be key to the design of such a mechanism.	We would like to work with franchising authorities to investigate this option further.
Route-level efficiency sharing	There was majority high level support for such a mechanism, though a number of concerns were expressed regarding how it might be implemented, including setting the baseline and exposure to down-side risk. Network Rail argued for bespoke efficiency sharing arrangements on the grounds that it would expose operators to those costs that they can genuinely influence.	We consider the points raised by stakeholders further in the remainder of this chapter and in Annex B.	We have investigated this option further and set out our proposal for a route-level mechanism, which could be implemented as part of PR13, in this incentives consultation. We are engaging with franchising authorities with the aim that the mechanism applies to new franchises .
Sharing operators' costs	Few responses focused on the option for Network Rail to share in operators costs. Those responses which did were opposed to the concept.	Operators' costs are not subject to the same level of regulation and scrutiny as Network Rail. A logical prerequisite would be to work with franchise authorities to improve transparency of train operator costs, including the potential for benchmarking these costs across operators.	We consider this to be complex to implement and have less merit than sharing of Network Rail's costs. If franchising authorities wish to explore this option further, we will support them in doing so, but will not progress as part of PR13.

4.24. Given that DfT is launching several refranchising competitions over the next year, we are working with it to establish the parameters for such mechanisms in new franchises. DfT has agreed in principle to a form of route-level efficiency sharing, and set that out in its draft invitation to tender document for the Intercity West Coast Franchise[41]. We are also engaging with Transport Scotland on this topic. Transport Scotland has asked for more evidence concerning how the mechanism might function in Scotland and its impacts.

4.25. In addition, we are considering the role of bespoke deals between one or more operators and Network Rail, including in the context of an alliance, as a complement to or potential substitute for the above mechanisms. We discuss this further below.

4.26. All of the options we have considered require agreement of the relevant franchising authority to be effective for the franchise concerned. Although we have said that we do not intend to pursue options relating to operator cost sharing and increased exposure to changes in track access charges as part of PR13, we are happy to work with franchising authorities to explore these options further should they wish to do so.

Proposed route-level efficiency benefit sharing mechanism

General principles

4.27. We intend to establish principles to which our proposed route-based efficiency sharing mechanism should adhere, and that any potential bespoke arrangement would adhere to also. Our proposed principles, for consultation, are that the mechanism should:

(a) provide clear effective incentives to passenger and freight train operators to work with Network Rail to identify and help implement opportunities to increase Network Rail's efficiency;

(b) provide potential rewards commensurate with the effort put in;

(c) provide incentives irrespective of whether Network Rail is over or under performing;

(d) minimise side effects and perverse incentives;

(e) reflect the financial capacity of each operator involved to bear risk;

(f) be as transparent and simple as practicable and have administrative costs that are minimised and proportionate to the potential efficiency gains;

(g) not result in undue disadvantage or discrimination to a certain operator or operators; and

(h) more generally be consistent with relevant legislation.

4.28. We also note that the arrangement would need to be compatible with any franchise agreement.

Our proposal for a route-level efficiency sharing mechanism

4.29. Table 4.2 sets out details of the route-level efficiency benefit sharing mechanism that we are proposing and explains how this would differ compared to the current national EBSM (which the route-based mechanism would replace). This is a refined version of the proposal that we set out in our May consultation. Our intention is that this provides a clear, simple and comprehensive default mechanism for Network Rail to share efficiencies with operators and support greater cooperation to drive down costs.

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[41] Available at http://assets.dft.gov.uk/publications/intercity-west-coast-franchise/draft-invitation-to-tender-tender-invitation-document.pdf.

4.30. More details on the rationale for this proposal, including an analysis of risk and implementation issues, are set out in Annex B.

4.31. We welcome views on our proposed principles for efficiency sharing arrangements between Network Rail and train operators.

Table 4.2: Summary of route-level efficiency sharing mechanism proposal

Characteristic of mechanism	Same as EBSM?	Proposal
Level of disaggregation	No – route level	Network Rail operating route-level (consistent with Network Rail's accounts).
Efficiencies to be shared	Similar to EBSM	Expenditure and revenues covered are: • operating, maintenance and renewals expenditure (not amortised); • property income; • potentially some smaller scale enhancement expenditure; and • potential for some costs to be dealt with separately through bespoke arrangements (see below).
Membership	Some changes	Compulsory, except where: • adequate bespoke arrangements are in place; or • operators that fall below the 'cut-off' (or 'de minimis' threshold) may choose to opt out. For existing franchises, the effect of the mechanism would be negated (under "Schedule 9"). Applicable to new franchises, subject to agreement from relevant franchising authority. As with the EBSM, evidence of positive engagement required in order to receive payouts.
Bespoke arrangements		Bespoke arrangements may be a complement to the default mechanism or replace it if they comply with the principles of efficiency sharing that we set out and the incentives are at least as strong as for the existing mechanism. Some Network Rail costs could be dealt with entirely through bespoke arrangements, e.g. a specific renewals project that does not affect non-participating operators.
Extent of sharing with Network Rail	Now a downside as well as an upside	• upside: 25% of outperformance • downside: 10% of underperformance
Allocation of sharing between operators	Yes – same	Operators share based on variable track access charges paid, as with existing EBSM
Caps	Not the same. Caps introduced	Financial cap for each year, based on level of Network Rail under / outperformance for each route: • Upside: 10% • Downside: 10%
Payments	Yes – same	Payments are in cash, paid to operators annually.
Efficiency measurement	Yes – same	Efficiencies to be confirmed in our 'Annual efficiency and finance assessment of Network Rail'.
Implementation	Similar to EBSM	Through track access contract as part of PR13; application of the mechanism to new franchised operators would be dependent on the terms of the franchise agreement.

4.32. Key differences between our proposal and the existing EBSM are:

(a) **It would be disaggregated to route level**. The mechanism would apply for each of Network Rail's routes. This is consistent with the disaggregation of Network Rail's accounts and our regulation of Network Rail's funds. Applying the mechanism by route means that operators with services concentrated on particular routes will receive a greater return for their efforts, and hence be a stronger incentive for them to reduce Network Rail's costs. National operators will face weaker incentives, but it will still be in their interest to co-operate and to challenge, provided that they do not bear significant costs in doing so.

(b) **It would include an element of downside risk**. Unlike with the EBSM, we propose that Network Rail shares the cost of underperformance with operators. We have investigated this option in our analysis in Annex B, and our assessment is that some down side risk sharpens incentives and more than outweighs cost (if any) of risk transfer.

(c) **Membership.** Consistent with the recommendations in the RVfM Study, our aim is to incentivise all operators to contribute to reducing infrastructure costs (subject to some de minimis conditions); hence we propose a mechanism should be the default option for all operators; we would only accept alternative bespoke arrangements if they complied with principles that we listed, for consultation, above.

4.33. We welcome consultees' comments on our proposed design of the REBS mechanism, as described here and in Annex B.

4.34. Table 4.3 is a worked example of the financial rewards and costs that could arise from our proposed mechanism. In this example, operators 1 and 2 are active on both routes A and B. Route A has outperformed our efficiency assumptions and Route B has underperformed. In the example, both operators gain from the mechanism, as does Network Rail. The cost incurred by operators on Route B is more than offset by the outperformance reward gained on Route A.

Table 4.3: Worked example of route-based efficiency sharing

Route	Over/(Under) Performance (£000s)	EBS %	EBS to be distributed (£000s)	Operator	% of total variable charges for the route	Total payments received (£000s)
A	£5,000	25%	£1,250	1	13%	£156
				2	25%	£313
				3	63%	£781
				Total	**100%**	**£1,250**
B	-£1,000	10%	-£100	1	25%	-£25
				2	75%	-£75
				Total	**100%**	**-£100**

Total: Operator 1 total	**£131**
Total: Operator 2 total	**£238**
Total: Network Rail	**£2850**[42]

Bespoke arrangements

4.35. The above mechanism would be a default arrangement. However, we recognise that train operators and Network Rail may be able to agree bespoke arrangements concerning efficiency sharing that deliver greater benefits to the industry and wider society. These bespoke arrangements may:

[42] Network Rail's net outperformance is £4,000 (=£5,000-£1,000), of this £1,150 (=£1,250-£100) is shared with train operators, and £2,850 is retained by Network Rail.

(a) supplement the default route-level efficiency benefit sharing (REBS) mechanism. For example, bespoke arrangements could be agreed for larger enhancement projects which are not covered by the scheme; or

(b) replace the default mechanism. We are proposing that train operators and Network Rail should be able to opt-out of the mechanism if the incentives to engage to improve efficiency are at least as strong under the bespoke arrangements and that they adhere to the principles that we set out and consult on above. Other operators' payments (or claw backs) under the default mechanism would be unaffected by the arrangement.

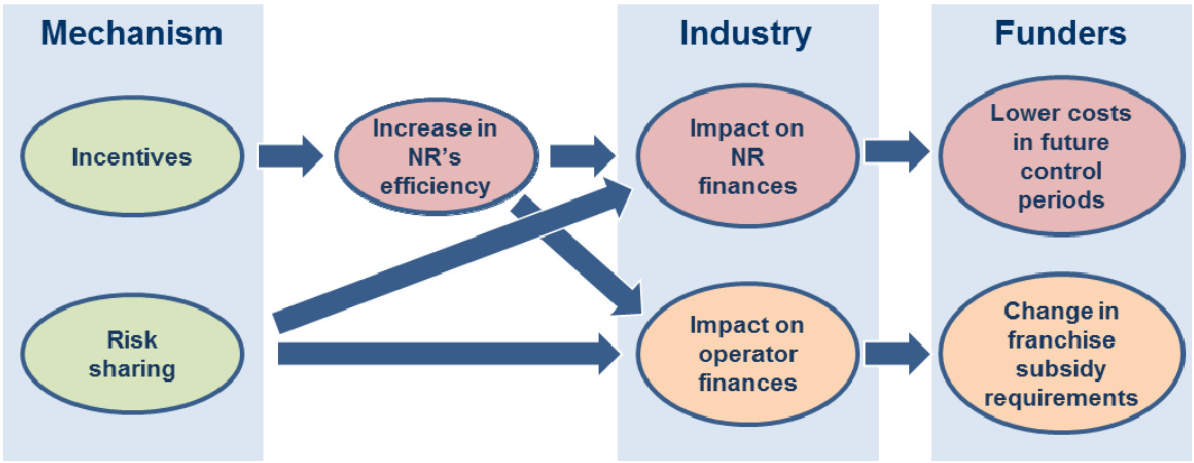
In addition, we can envisage bespoke arrangements may be suitable for certain specific renewals schemes, for example, those that affect only participating operators. In such cases, the associated costs might be excluded from the default REBS.

4.36. We welcome consultees' comments on our assessment of the role of bespoke arrangements, in particular regarding scope for excluding some of Network Rail's costs from the default efficiency sharing mechanism.

Impact of the mechanism

4.37. Figure 4.4 outlines the means by which the mechanism affects Network Rail, train operators and funders. We outline these impacts in this section, and present quantitative analysis on impacts in Annex B.

Figure 4.4: Impact of the efficiency sharing mechanism on industry and funders



4.38. Estimates of the gains in Network Rail's efficiency that result from the mechanism are inevitably speculative. We present some illustrative analysis of potential gains in Annex B.

4.39. For Network Rail, our analysis suggests that, taking account of variations between routes, the route-based efficiency sharing mechanism would marginally reduce Network Rail's downside risk. Depending on how the baseline is set, it may also increase Network Rail's expected profit through train operators' actions to reduce costs.

4.40. The mechanism results in an increase in train operators' risk. Under our proposals, the additional risk is small (for example, prior to taking into account the benefits of efficiency gains, our analysis suggests it accounts for less than 10% of expected profit) and, given that the mechanism is asymmetric, the expected payout is positive. If the additional risk is small relative to the portfolio of risks that the train operators already bear, as it has little correlation with those risks, its cost implications may be negligible.

4.41. There are two ways in which REBS may potentially impact on government funds:

(a) the expected financial impact of the mechanism and the risk associated with it will be reflected in bids for new franchises. Under our proposal for an asymmetric mechanism, our analysis suggests that franchises may require less subsidy as a result of this mechanism; and

(b) for subsequent control periods, funders would benefit from adjustments to Network Rail's efficiency baseline to reflect Network Rail's greater efficiency arising from the alignment of incentives produced by the REBS mechanism.

4.42. We welcome consultees' comments on our assessment of potential impacts of a route-based efficiency sharing mechanism, as described in this chapter and in Annex B.

Exposure to Network Rail's costs at a periodic review

4.43. The aim of a route-based efficiency sharing mechanism is to incentivise train operators to work on an ongoing basis with Network Rail to help increase its efficiency. But the regulatory regime, and hence Network Rail's efficiency, is better overall if operators engage with Network Rail and with us in the periodic review. In isolation, an efficiency sharing mechanism would incentivise operators to argue for a lenient efficiency baseline. Exposing operators to Network Rail's costs as determined through the periodic review may provide an appropriate counterbalance to such an incentive, as we have seen through freight operators' extensive engagement in previous periodic reviews.

4.44. Building on our May consultation, we propose a mechanism that shares Network Rail's operating, maintenance and renewal cost risk (and potentially risk relative to some Network Rail revenue items), route by route (as determined at a periodic review) with operators for control period 6 (CP6) onwards.

4.45. All operators currently have very little exposure to Network Rail's fixed costs as determined at a periodic review. Hence we propose to develop the mechanism on the basis that it would apply to all passenger and freight operators . It would only have a financial impact on franchise operators if it were permitted under their franchise agreement. Without such a change, the case for such a mechanism would be considerably weakened, and we will engage with the relevant franchising authority to discuss this.

4.46. In some respects the mechanism could be implemented in a manner analogous to that of our proposed efficiency sharing mechanism. Some differences are that:

(a) we think that it is appropriate for renewal costs to be amortised so that operators do not face strong incentives to argue for renewal deferment (by contrast, the EBSM functions in the context of determined output commitments);

(b) we do not think bespoke arrangements between Network Rail and operators are an appropriate replacement for such a mechanism, because the interests of operators and Network Rail conflict to some degree under the mechanism;

(c) all enhancement costs would be excluded (in contrast, we are considering whether it would be appropriate to include some smaller scale enhancements in the proposed route-based efficiency sharing mechanism);

(d) train operators would need to be operating services on the network some years prior to the periodic review in order to be eligible for the mechanism, otherwise the objective of the mechanism – for operators to engage to reduce costs during the periodic review – would not be achieved.

4.47. We would expect fluctuations in costs between control periods to be significantly greater than the fluctuations in efficiency relative to a baseline. The risks would need to be mitigated through sharing rules (the rates of sharing should be lower than under the efficiency sharing mechanism), caps and the setting of a baseline so that they would not represent a significant increase in risk to operators' businesses.

4.48. We could set a baseline, for example, at the outturn (or actual) costs for the previous control period. Under the mechanism, the rates would then be calculated on the basis of the expenditure assumptions used to determine Network Rail's revenue requirement in our periodic review determination. Hence the rates of payout under the mechanism would be set in advance for the entire control period (though the allocation between individual train operators might then vary according to actual service patterns).

4.49. We propose that the baseline would be reset at each subsequent periodic review (so for example if we determined that costs were to fall by 10% in one control period and then increase by 3% in the next control period, the mechanism would share +3% in the second control period rather than the cumulative -7%).

4.50. Train operators may be concerned that funders would have the freedom to increase levels of renewals expenditure (for example as a result of changes to asset policy and / or new evidence on asset condition) and thereby, under such a mechanism, increase operators' costs. Under the mechanism, however, operators would only pay the amortised cost of the additional renewals for the first control period in which it occurred, at which point we propose the baseline is reset. But in any case it would be important that funders bore a large proportion of costs, so that the sharing mechanism did not distort their decision making.

4.51. We welcome consultees' comments on our preliminary proposal for exposing passenger and freight operators to changes in Network Rail's fixed costs in subsequent periodic reviews.

Questions

4.52. The questions raised in this chapter are summarised in the box below.

Chapter 4: Questions for stakeholders

Q4.1: What are your views on our proposed principles for efficiency sharing arrangements between Network Rail and train operators? To what extent to do you think they will improve the incentives on train operators to work with Network Rail to reduce its costs?

Q4.2: What are your views on our proposed design of a route-based efficiency sharing mechanism, as described in this chapter and in Annex B? To what extent to do you think they will improve the incentives on train operators to work with Network Rail to reduce its costs?

Q4.3: What are your views on our assessment of the role of bespoke arrangements? In what circumstances do you think bespoke arrangements are likely? What advantages and disadvantages might they bring? How should we best assess them? What are your views on the scope for excluding some of Network Rail's costs from the default efficiency sharing mechanism?

Q4:4 What are your views on our assessment of potential impacts of a route-based efficiency sharing mechanism, as described in this chapter and in Annex B?

Q4.5: What are your views on our preliminary proposal for exposing passenger and freight operators to changes in Network Rail's fixed costs in subsequent periodic reviews?

5. Possessions and performance regimes

Key messages from this chapter

- We aim to ensure train operators receive an appropriate level of compensation for service disruption (planned or unplanned) attributable to Network Rail and other train operators. We intend to reduce the risk of any instances where train operators are over or under compensated for service disruption by updating payment rates so they reflect the latest evidence. We will also consider whether to introduce other measures such as introducing a time lag on Schedule 8 payments and reviewing whether Schedule 4 and 8 payment rates should be set below full compensation to encourage train operators to work with Network Rail to help it improve its performance and minimise the number and impact of possessions.
- Schedules 4 and 8 also have incentive effects. We invite stakeholders' views on whether we should place further incentives on Network Rail to ensure it fully takes into consideration the impact of service disruption on passengers, freight customers and society as a whole.
- The RVfM study highlighted the need for stronger alignment between train operators and Network Rail, for example, through joint ventures/ alliances. In a more joined up industry there may be more instances where Network Rail and train operators wish to modify or replace Schedules 4 and/ or 8 with bespoke possession and/ or performance arrangements. We support this idea and are minded to approve such arrangements in cases where we are satisfied they do not undermine the incentives of Network Rail and train operators to work together to minimise service disruption.

Introduction

5.1. Alongside track access charges, the Schedule 4 possessions regime and the Schedule 8 performance regime are the other two major established financial mechanisms in track access contracts between Network Rail and train operators that significantly align incentives between them.

5.2. Schedule 4 applies when Network Rail arranges a planned Restriction of Use (RoU) on part of the network, most commonly for engineering possessions. Schedule 8 applies when there is unplanned disruption, such as when train services are late or cancelled. This chapter looks at these mechanisms.

5.3. The structure of the chapter is as follows:

(a) Why we have performance and possessions regimes

(b) Issues relating to Schedules 4 and 8

(c) Overall effectiveness of Schedules 4 and 8

(d) How Schedules 4 and 8 would work in a more joined up industry

(e) Next steps in our review of Schedules 4 and 8

5.4. In Annex D of our May consultation, we discussed Schedules 4 and 8[43] and set out a number of issues to consider going forward. This chapter builds on our May consultation and responses[44] and also discussions we have had with the industry, including the Schedule 8 workshop in July 2011 and the Schedule 4 workshop in November 2011.

Why we have performance and possession regimes

5.5. The Schedule 4 possessions regime and Schedule 8 performance regime are designed to compensate for revenue losses and/ or costs incurred by train operators[45] as a result of service disruption, either as a result of poor performance or possessions. They are standard schedules in the default track access contracts. We are therefore reviewing them as part of PR13. The purpose of Schedules 4 and 8 is explained in Box 5.1.

Box 5.1: Purpose of Schedule 4 and 8 possession and performance regimes

The primary role of Schedules 4 and 8 is:

- To compensate train operators for the financial impact of service disruption attributable to Network Rail or other train operators. This reduces the level of risk faced by train operators and therefore helps reduce franchise costs

By doing this, they also:

- Help align financial incentives between Network Rail and train operators, so the impact of service disruption on revenue and/ or costs is incurred by the organisation that the disruption is attributable to, rather than the train operator who faces the disruption
- Provide signals to Network Rail on the impact of service disruption on train operators costs and revenues to help drive their decision making, for example in relation to investment prioritisation and possessions management.

5.6. Schedule 4 and 8 are liquidated sums[46] regimes which mean that compensation payments are determined by formula rather than negotiation. This is a common feature of contracts and is a way of avoiding excessive legal and administrative costs. Under Schedules 4 and 8, payment rates have in the past been set at a level which should:

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43 See sections D44-D56 of *Periodic review 2013: first consultation – annexes*, May 2011, available at http://www.rail-reg.gov.uk/pr13/PDF/PR13-first-consultation-annexes.pdf

44 Responses to the May consultation are available at http://www.rail-reg.gov.uk/pr13/consultations/orr013.php

45 There are separate schedule 4 and 8 regimes for passenger, freight and open access operators. This chapter discusses them all together.

46 We use the term liquidated sums rather than liquidated damages to reflect the fact that Network Rail and train operators are also rewarded for good performance and minimising possessions. Under schedule 8, Network Rail and train operators are paid bonus payments when their performance is better than a pre-determined benchmark. Under schedule 4 (when fully in use), an Access Charge Supplement is paid to Network Rail to reflect the expected financial impact on train operators resulting from disruption due to planned possessions, and therefore expected schedule 4 payments. If Network Rail's schedule 4 payments are less than expected, it is allowed to retain the difference between the Access Charge Supplement and schedule 4 payments.

(a) provide train operators with a level of compensation that reflects the impact of service disruption attributable to other parties on their revenues and/ or costs;

(b) incentivise Network Rail to take into account the financial impact on train operators of any disruption to train services it causes; and

(c) incentivise train operators to take into account the financial impact of any disruption they cause to the services of other train operators.

5.7. In addition to this, Schedules 4 and 8 contain mechanisms that allow train operators to claim additional compensation when poor performance or planned possessions are sustained over a long period of time. The intention is that these mechanisms are triggered when service disruption reaches a level where the compensation under the standard Schedules 4 and 8 liquidated sums arrangements is materially less than what is needed to reflect the actual impact on the operator. With Schedule 8, train operators can claim this additional compensation when the Sustained Poor Performance (SPP) threshold is crossed. With Schedule 4 additional compensation is available where possessions are long or disruption is sustained[47].

5.8. Box 5.2 provides a summary of how passengers are understood to respond to service disruption and how Schedules 4 and 8 take this into account.

[47] In the schedule 4 freight regime, for more disruptive individual possessions (types 2 and 3), it is also possible for freight operators to claim compensation above that calculated using the schedule 4 liquidated sums formulae.

Box 5.2 Operators' responses to service disruption

Services that are late or cancelled can cause acute inconvenience to passengers. They may not impact on operators' revenue immediately (passengers can only claim compensation in some cases), but over the subsequent months and years people will be put off using the service.

The compensation rates seek to reflect the impact of poor performance for a service on future rail demand. The rates are derived from passenger preference research. They are a weighted average of individual journeys within each group of services, taking account of the mix of travellers (e.g. airport passengers respond more strongly to poor performance) and journey characteristics (passengers on longer journeys respond differently to those on shorter journeys).

Statistical research into the impact of performance on rail demand (as opposed to passengers' preferences) has been attempted but with little success, and robust relationships have not been established. So whether the current regime over or under compensates operators (and in which context) is unclear: the effect is longer term and hidden by wider changes in society's travel patterns.

The Schedule 4 passenger compensation rates are based on those used in Schedule 8. The market research shows that although large numbers of passengers will, for example, seek to avoid using bus replacement services, they are less likely to abandon the rail service for future journeys if they can be warned of the disruption in advance.

Research into freight customers' preferences is less advanced. Compensation rates have principally been based on freight operators' costs (for example as a result of diverting via a longer route). More research is now available, including the ORR / DfT 2009 study valuing journey time and service reliability for different freight commodities[48].

5.9. Annex C contains more detail on the purpose of Schedules 4 and 8 and how they work, including how payment rates are calculated and how delays are attributed.

5.10. In addition to Schedules 4 and 8, there are other procedures and mechanisms in place to promote good performance and efficient management of possessions. We discuss these in turn below.

Other arrangements for encouraging good performance

5.11. Since the late 1990s the industry has used a single metric, the Public Performance Measure (PPM) to measure the percentage of trains that reach their final destination within a certain margin (right time to either five or ten minutes, having made all scheduled calls). Results are achieved by the joint efforts of Network Rail and train operators, but Network Rail has a special responsibility to lead the performance improvement process so that target levels of PPM are achieved. Failure to meet targets will affect the reputation of both parties and could lead to enforcement action against Network Rail if ORR was not satisfied that Network Rail had taken the necessary action having regard to the environment in which it was operating.

5.12. Passenger operators are incentivised to perform well through the impact on fare revenue and reputation, though the strength of this effect varies widely. In addition to this, franchise agreements

[48] Rail freight user values of time and reliability: final report by AECOM, available at http://www.rail-reg.gov.uk/server/show/nav.2254

generally include requirements that performance is maintained at a certain level. This is particularly important for franchised train operators with a large proportion of passengers that do not have viable alternatives, which may be the case, for example, with commuter services. Schedule 8 adds to these incentives so train operators decisions also take into account the impact of delays to their services on other operators.

5.13. There are also processes for Network Rail and passenger train operators to work together to improve performance, the main one being JPIPs (Joint Performance Improvement Plans). These are annual agreements between passenger train operators and Network Rail, detailing how each party will contribute to continuously improving performance, and are an obligation under the Network Code. Another is the National Task Force, a cross-industry body with senior representatives from passenger and freight train operators, Network Rail, ATOC, the DfT and the ORR. Its primary focus is train service delivery.

Other arrangements for encouraging efficient arrangement of possessions

5.14. As with the Schedule 8 performance regime, the Schedule 4 possessions regime needs to be considered within the context of other measures to minimise planned disruption. Some examples are:

(a) the passenger and freight possession disruption indices, for which we set regulated targets for Network Rail to reduce planned disruption to passenger services and not to increase disruption for freight services over the course of CP4; and

(b) Joint Network Availability Plans (JNAPs) in which Network Rail and operators set out the approach to reducing the impact of possessions on services.

Issues relating to Schedules 4 and 8

5.15. On the whole responses to our May consultation and other discussions we have had following our May consultation, including in the workshops we have held, suggest Schedules 4 and 8 broadly perform their intended role. Rather than radical reform, these responses and discussions have suggested that our review of Schedules 4 and 8 should focus on updating the metrics of the regimes so they reflect present circumstances, for example in relation to the revenue impact of disruption to services. Consultation responses from train operators stated that there is a clear need for performance and possession regimes such Schedules 4 and 8.

5.16. However, we are aware that some stakeholders hold a contrary view. Anecdotal evidence suggests that there have been instances where Schedules 4 and 8 have resulted in perverse incentives, encouraging Network Rail and train operators to work against each other to minimise their downside exposure and maximise their own revenues, to the detriment of passengers.

5.17. We set out below the issues that stakeholders have identified relating to Schedules 4 and 8, and which we will need to consider fully as we review them.

There may be instances where Schedules 4 and 8 over-compensate train operators for service disruption caused by Network Rail and other train operators

5.18. Some stakeholders have expressed concern that there are instances where Schedules 4 and 8 over-compensate passenger train operators for service disruption[49]. In particular, there is a view that Schedule 4

[49] Under schedule 8, bonus payments are paid to Network Rail when performance is above a benchmark and under schedule 4 an access charge supplement is paid to cover the expected costs of schedule 4 payments. Therefore, if train operators are over compensated for service disruption, Network Rail is also over rewarded when it performs well or has a lower than expected number of possessions.

in its current form, can result in train operators being content to accept Schedule 4 payments and run replacement buses rather than work more closely with Network Rail to agree on possession strategies and timetabling solutions that minimise disruption to passengers.

5.19. In addition to this, concern was expressed by some participants of our Schedule 4 workshop in November 2011 that it encourages too many weekend and short overnight possessions when there may be other solutions that offer better value for money. These may include longer weekday overnight possessions where the first and last weekday train services are cancelled. We also have anecdotal evidence that Schedule 4 encourages Network Rail to book possessions years in advance, which often results in cancellations of possessions at short notice and clashes with major events.

5.20. With many liquidated sums compensation regime, payments are sometimes more or less than the actual financial impact experienced, and this is not something that can be avoided completely. However, it is important that we avoid structural biases in the Schedule 4 and 8 regimes, for example, if a particular train operator is on average over-compensated for the financial impact of service disruption.

5.21. To address this, we propose to review payment rates so they provide a more up to date reflection of the impact of disruption on train operators. In relation to the Schedule 8 passenger regime, we also intend to review whether it would be appropriate and practical to introduce a time lag on payments to reflect the fact the impact of performance on train operators' revenue takes place over a period of time, rather than at the time the poor performance occurs. This would reduce the risk of train operators near the end of the franchise period, who therefore do not suffer such a high degree of revenue loss as a result of poor performance, being over-compensated[50].

5.22. A further way of reducing the risk that train operators are over-compensated is to set payment rates at a level that is not intended to fully compensate train operators. This would also help encourage train operators to work with Network Rail to help it improve performance and minimise the number and impact of possessions. We therefore intend to review this as we explore ways that the industry can be encouraged to work more closely together.

5.23. However, we are mindful that a disadvantage of doing this is that it would weaken the financial incentive for Network Rail to reduce disruption to services (which some stakeholders tell us is already weak, see below). We would therefore need to ensure that any reductions in payment rates are at a level where the incentive created for train operators to work with Network Rail are stronger than the reduction in financial incentive for Network Rail to minimise disruption to services. We also acknowledge that it may not be practical to make this change for existing franchises operating with financial protections from changes to Schedules 4 and 8.

5.24. In our May consultation we asked whether train operators should receive compensation payments below the full cost and revenue impact of planned possessions.

5.25. We invite views on whether it would benefit consumers and taxpayers and encourage greater co-operation if Schedule 8 compensation rates from Network Rail to train operators do not reflect the full impact of possessions on revenue and costs. We also welcome any further views on this issue in relation to Schedule 4.

5.26. Box 5.3 summarises our proposal to avoid train operators being over-compensated for disruption to their services.

[50] The compensation payments under the schedule 8 freight regime mostly relate to costs making this unnecessary here.

Box 5.3 How we intend to avoid train operators being over-compensated for service disruption due to poor performance or possessions

- Update payment rates so they reflect the current revenue and cost impact of service disruption.
- Review whether it is appropriate and practical to introduce a time lag on payments in the Schedule 8 passenger regime to reflect the fact the impact of performance on revenue goes beyond the short term.
- Review whether payment rates should be set at a level that does not fully compensate train operators for service disruption due to poor performance and possessions.

Schedules 4 and 8 do not fully incentivise Network Rail to provide appropriate service quality

5.27. While Schedules 4 and 8 are designed to incentivise Network Rail and individual train operators to behave in a way that is financially optimal for Network Rail and train operators as a whole, they do not necessarily incentivise them to behave in a way that delivers optimal service levels for passengers. This is because the economic and social costs of poor performance are not fully reflected by changes in train operator revenues, and hence payment rates. For example:

(a) some customers of train services (passengers and freight) do not have suitable alternatives meaning they continue to use services that are heavily disrupted or where performance is poor;

(b) there are positive impacts of train services on non-users, which users may not take into account when making their decisions, for example, in terms of reducing traffic congestion and pollution

5.28. This issue is partly addressed through the use of other arrangements for encouraging good performance and efficient possessions as mentioned above. However, there may be a need for additional incentives. In CP2, the Schedule 8 passenger regime contained a societal rate payable to DfT to reflect the financial impact of poor performance beyond that faced by train operators. This was dropped at the end of CP2 because it added too much complexity.

5.29. Concern has been expressed by some train operators that Network Rail, due to the relatively small size of Schedule 4 and 8 payments compared to its total cost, does not care enough about them to fully respond to the financial incentives they create. A potential way to overcome this could be to introduce a punitive element to the payments. This would not necessarily need to be passed on to train operators. It could be passed on to franchising authorities helping reduce levels of public subsidy when service quality falls below the level the public expects.

5.30. Another way of increasing the incentives on Network Rail to reduce service disruption that was suggested at our workshop and elsewhere is to allow train operators to withhold track access charges when performance is poor or possessions are at an unacceptable level. We discuss this in Box 5.4.

Box 5.4 Should train operators be permitted to withhold track access when performance is poor or possessions are at an unacceptable level?

Some stakeholders have expressed concern that Network Rail is not always adequately incentivised to minimise service disruption and have suggested that they be permitted to withhold track access charges when service disruption is above a certain level. This could take two forms:

1. Train operators could withhold track access charges in addition to the compensation they already receive in relation to Schedules 4 and 8; or
2. The ability of train operators to withhold track access charges replaces (or partially replaces) Schedules 4 and 8.

Train operators are already able to receive additional compensation when service disruption is sustained, either through the sustained poor performance (SPP) threshold or sustained planned disruption (SPD) clauses in track access contracts. In addition to this, we have the power to fine Network Rail when it does not deliver its licence obligations. As a consequence of these arrangements, an operator's ability to suspend payment of charges is constrained.

The latter could involve removing the liquidated sums aspects of Schedules 4 and 8. However, with no clear criteria on what an acceptable level of performance would be and the amount of track access charges that could be withheld, it is likely there would be a high number of disputes between Network Rail and train operators resulting in high administrative and legal costs. It would still be necessary to have a delay attribution system to determine the causes of delay.

One way to reduce the number of disputes would be to determine the amount of track access charges that could be withheld through the use of a liquidated sums regime. This would essentially be another way of presenting Schedules 4 and 8 and would best be dealt with through reform of these regimes, rather than their replacement.

Given the above, we do not propose to remove the liquidated sums aspect of Schedules 4 and 8 and instead permit train operators to withhold track access charges. We also recognise that it may be desirable to strengthen the incentives on Network Rail to minimise service disruption and are also open to suggestions on how mechanisms within track access contracts for dealing with sustained service disruption could be improved.

5.31. We invite views on whether existing incentives are as effective as they should be in ensuring Network Rail and train operators perform at a level that is economically and socially optimal, and whether they sufficiently drive Network Rail's behaviour. In particular, we invite views on whether we should place further incentives on Network Rail to ensure it fully takes into consideration the impact of service disruption on passengers, i.e. disruption above that already reflected in Schedules 4 and 8 compensation payments for loss of fare revenue, and how we could go about doing this.

The transmission mechanism

5.32. While possession and performance regimes such as Schedules 4 and 8 provide incentives to Network Rail as an organisation to improve performance and plan and manage possessions efficiently, for these incentives to work properly, they need to be transmitted across the organisation as a whole. So, for example, for Network Rail to act on Schedule 8 incentives at a local level, managers making relevant decisions need to understand the incentives and have the power and motivation to act on them.

5.33. In our July 2011 Schedule 8 workshop, some train operators expressed the view that there are currently situations where Network Rail is performing poorly on a section of route and making high Schedule 8 payments but local Network Rail management do not have the knowledge and understanding, incentives and/or power to take the steps necessary to improve performance. Clearly, for Schedule 8 to be fully effective, its incentives need to be felt and responded to at the appropriate level of the organisation by those with the responsibility and authority to do so.

5.34. Network Rail responded that it believes that there is a high degree of local accountability at Network Rail and that while its internal management structure is focussed more on meeting targets than the Schedule 8 performance regime, the impact on Schedule 8 payments is important when building business cases.

5.35. Similar issues were raised regarding Schedule 4 in consultation responses. In addition, some concerns were raised in the November 2011 Schedule 4 workshop about whether some decisions made by Network Rail are based on avoiding Schedule 4 costs without fully taking into account the trade-off between this and minimising the actual costs of possessions, for example by running longer possessions.

5.36. It is our intention to consider how well the incentive effects of Schedules 4 and 8 are transmitted across Network Rail to managers' decision making, when working with the industry in the review of Schedules 4 and 8.

Alignment of incentives in extreme weather conditions

5.37. Network Rail and train operators have raised concerns relating to the impact of Schedules 4 and 8 on incentives during extreme weather conditions. At present, in these situations Network Rail and train operators are both able to declare a planned Restriction of Use (RoU), which would involve putting in place an emergency timetable. If Network Rail declares a RoU, it has to compensate train operators via the Schedule 4 mechanism, whereas if a train operator declares a RoU, Network Rail does not have to compensate the train operator.

5.38. The view expressed by several train operators is that Network Rail has little incentive to declare a RoU at times of severe disruption (e.g. extreme weather conditions) and thereby run a reduced but feasible timetable, since it would then have to pay compensation under Schedule 4. Instead train operators felt that the onus falls on them to declare an Operator Restriction of Use in order to run a revised timetable, and as a result forgo Schedule 4 compensation payments. Operators were also concerned about inconsistency in approach by different Network Rail routes as to when RoUs are declared and called for the establishment of clear criteria governing circumstances where RoUs should apply.

5.39. Network Rail expressed the view that during extreme disruption, train operators have the incentive to keep a full timetable, even if undeliverable, and receive Schedule 8 payments for the delays and cancellations that result. It also highlighted that in periods of extreme weather disruption, it has the incentive to cancel the entire scheduled timetable in advance and as a result avoid making Schedule 8 payments.

5.40. Network Rail suggested in its response to our May consultation that in practice something in between an Operator RoU and a Network Rail RoU might be preferable but the contractual provisions of Schedules 4 and 8 do not currently facilitate this. It proposed that the existence of a 'Joint Restriction of Use' concept would facilitate the parties working together to reschedule a realistic timetable.

5.41. Extreme weather is an infrequent occurrence and any changes we make to Schedules 4 and 8 need to take this into account. Nevertheless, extreme weather can have a disproportionate impact on customer service. We therefore intend to work with the industry to look into whether simple but effective changes, such the introduction of Joint RoUs, can be made to track access contracts to ensure incentives are better aligned in these situations.

Other issues

5.42. Some additional issues which have been raised in relation to Schedules 4 and 8 which we intend to review further are outlined below.

Schedule 4

(a) A notification discount factor is applied to the level of Schedule 4 compensation Network Rail pays if it provides enough notice to train operators. There are three different discount factors that can be applied, depending on the length of notice given. Stakeholders have questioned whether the current notification discount factor thresholds are set at a level that correctly aligns incentives.

(b) One stakeholder questioned whether the SPD threshold is set at the right level, arguing that possessions have an impact on revenue beyond that captured in Schedule 4 payments before the threshold is reached.

Schedule 8

(a) Operator-responsible train cancellations currently impact on their Schedule 8 payments. This is despite the fact that cancellations may not cause delays to other operators. This could disincentivise a train operator to cancel a train even when this would be the best way to ensure service recovery.

(b) Some stakeholders asked whether changes to the regime mid-control period via paragraph 17 of Schedule 8 should be restricted to situations where there are material changes to train services[51]. This would encourage the industry to work together to ensure rates are set correctly at the beginning of CP5, making our review of Schedule 8 more efficient and reducing the need to revisit some of the changes before the following periodic review.

(c) Some stakeholders asked whether it would be appropriate to agree a set of industry principles for attributing delays between Network Rail and train operators that operate partially off the Network Rail infrastructure, and if so what these principles should be. A current example of a train operator that operates partially on and partially off the Network Rail infrastructure is the Tyne and Wear metro. The biggest example in CP5 will be Crossrail.

Overall effectiveness of Schedules 4 and 8

5.43. Below, we set out our current view of how effective Schedules 4 and 8 are at compensating train operators for the financial impact of service disruption and at aligning incentives between Network Rail and train operators so the impact of service disruption on revenue and/ or costs is incurred by the organisation that the disruption is attributable to.

As compensation regimes

5.44. Taking into account the consultation responses and discussion with stakeholders, our view is that overall Schedules 4 and 8 are broadly effective compensation regimes and the liquidated sums nature helps them deliver value for money by constraining administrative and legal costs.

(a) By compensating train operators for disruption to services due to Network Rail and other operators, Schedules 4 and 8 help minimise the risk premium that franchised train operators incorporate into their bids, thus reducing funders' costs. They also help ensure that money is invested in areas that are more likely to result in a greater benefit to performance.

[51] Currently either party at any time may request a change in payment rates.

(b) Given the high volume of service disruption across the network as a whole, the liquidated sums nature of Schedules 4 and 8 makes it much more cost effective than a claims based system, due to the high transaction costs of the latter. Network Rail's consultation response has highlighted the high transaction costs in circumstances where claims are made outside the liquidated sums part of the regimes, for example, when the SPD threshold is crossed.

(c) They are able to function in an environment where there are many train operators using the same infrastructure, for example when the lateness of a particular train service can be attributed to more than one party.

5.45. Nevertheless, we have been given a clear message that we need to update payment rates to ensure they take into account of service patterns, patronage and revenue, and any new evidence relating to the responsiveness of customer demand to service disruption.

At aligning incentives

5.46. Some stakeholders have expressed the view that Schedules 4 and 8 are broadly successful at aligning incentives between Network Rail and train operators. In particular, the response from ATOC highlighted that compared to other incentive mechanisms, Schedules 8 and 4 have worked reasonably well, provide strong financial incentives for NR to 'do the right thing'.

5.47. However, some stakeholders have drawn attention to certain areas where Network Rail and operator incentives appear not to be aligned effectively (discussed above). Some examples are the impact of Schedules 4 and 8 on incentives during extreme weather disruption and relating to the way Schedule 4 and 8 incentives are transmitted across the industry.

5.48. The main limitation of Schedules 4 and 8 appear to be that they only go as far as aligning financial incentives between Network Rail and train operators. As discussed above, they do not expose Network Rail, or train operators, to the wider impact on passengers and society as a whole. There is also a question about whether their impact on Network Rail is sufficient to drive behaviour.

5.49. Given that Schedule 4 and 8 payments are the main way train operators are compensated for service disruption caused by others but are only one of a number of measures targeted at minimising service disruption, we are mindful not to fundamentally change the regimes so they provide incentives over and above what they are currently designed to do.

5.50. But, we recognise that Schedules 4 and 8 do not in all cases fully incentivise Network Rail to minimise disruption to a level that is socially optimal. We will consider whether there are incentives beyond Schedules 4 and 8 that could be adjusted or newly put in place to encourage Network Rail and train operators to minimise disruption due to poor performance and possessions.

How Schedules 4 and 8 would work in a more joined up industry

5.51. The RVfM Study highlighted the need for stronger alignment between train operators and Network Rail, for example, through joint ventures/ alliances. In a more joined up industry, there may be more instances where Network Rail and train operators wish to modify or replace Schedule 4 and/ or Schedule 8 with bespoke possession and/ or performance regimes. Some examples of where a bespoke regime might be preferable are:

(a) A joint venture or alliance between Network Rail and a train operator which results in Network Rail having some exposure to fare revenue

(b) In relation to an enhancement scheme which will benefit a train operator financially. The train operator might agree to face additional disruption and sacrifice Schedule 4 and 8 payments in order for the enhancement to be delivered more quickly

(c) Where a train operator considers that its passengers respond differently to lateness than assumed in metrics in the Schedule 8 regime, for example if there is evidence of a greater response when trains are more than a certain number of minutes late.

5.52. We are therefore considering whether there are instances where we should change our Criteria and Procedures[52] relating to bespoke Schedule 4 and 8 arrangements.

5.53. Responses to the May consultation broadly supported the idea of bespoke Schedule 4 and 8 arrangements in principle but raised some concerns. In particular, they expressed concern about the possible impact on other operators. There was general agreement that even if bespoke arrangements were permitted, national frameworks for Schedules 4 and 8 should continue to exist so train operators not operating under bespoke regimes are still compensated for the financial impact of service disruption.

5.54. Another issue that may occur is when franchised train operators are being paid revenue support by their franchising authority, for example, due to lower than expected fare revenues. Schedule 4 and 8 payments can have an impact on the amount of revenue support paid by a franchising authority to a train operator. We and the relevant franchising authority would need to understand the impact of any proposals for bespoke Schedule 4 or 8 arrangements where this might be the case.

5.55. We are minded only to approve bespoke Schedule 4 and 8 arrangements where we are satisfied that they do not undermine the incentives on Network Rail and train operators to work together to meet performance standards and minimise disruption to customers due to planned possessions.

5.56. We would also need to take account of the fact that there is a legal requirement (paragraph 14 of the Access & Management Regulations) for there to be a performance scheme 'to encourage railway undertakings and the infrastructure manager to minimise disruption and improve the performance of the railway network', and that 'the basic principles of the performance scheme must apply in a non-discriminatory manner throughout the network to which that scheme relates'.

We are keen to hear from stakeholders on whether they envisage any barriers to modifying or replacing the Schedule 4 and 8 regimes in cases where both a train operator and Network Rail wish to, and whether they agree with our proposal regarding the circumstances when we will approve bespoke Schedule 4 and 8 arrangements.

Next steps in the PR13 review of Schedules 4 and 8

5.57. We discuss the work we expect to be undertaken in relation to Schedules 4 and 8 in turn below.

5.58. It is clear that both Schedules 4 and 8 need to be recalibrated to take into account of changes to service patterns, patronage and revenue, and, for the passenger regimes, any new evidence relating to the responsiveness of passenger demand to service disruption. We will work closely with industry to determine the scope of the recalibration and design a process that achieves its aims and ensures good value for money. This includes working with industry to identify the best governance arrangements and ensure confidential information is protected.

[52] More information on our Criteria and Procedures in relation to track access contracts is available at http://www.rail-reg.gov.uk/server/show/nav.2409

Schedule 8

5.59. We anticipate that the recalibration of Schedule 8 will include updating payment rates and benchmarks and marginal revenue effects (which were last reviewed in 2005), to reflect the most recent information we have on revenue flows and performance.

5.60. Issues discussed in the May consultation that we intend to review further with the industry are as follows:

(a) How we respond to requests for bespoke Schedule 8 arrangements, particularly in the presence of joint ventures or alliances, and ensuring we remove any unnecessary barriers that may currently exist with respect bespoke arrangements.

(b) The relationship between Schedule 8 and other regimes such as JPIPs, part H of the Network Code[53] and Schedule 4 and how well they are aligned with each other.

(c) The SPP threshold to see if it is currently working as intended and whether it is set to the right level, currently 10%.

(d) Whether it is appropriate and practical to introduce a time lag on Schedule 8 payments, for example making payments every 3 periods, or delaying payments by a certain amount of time. The purpose of this would be to reflect the fact that passengers may not respond immediately to below or above benchmark performance meaning that it will not necessarily have an immediate impact on passenger revenue.

5.61. In addition to this, we intend to work with industry to look into some areas not discussed in the May consultation. This is a result of consultation responses and discussions with the industry. These are as follows:

(a) Whether the size of Schedule 8 payments should be reduced to a level below the revenue impact of above or below benchmark performance to encourage train operators and Network Rail to work more closely together. At the moment, when Schedule 8 works correctly, train operators are compensated by (make bonus payments to) Network Rail in full for revenue loss (gain) arising from performance below (above) the benchmark level, leaving them with little incentive to try and resolve problems of poor infrastructure performance with Network Rail.

(b) Whether we should further encourage Network Rail to minimise disruption due to poor performance by adjusting or creating incentives beyond Schedule 8.

(c) How well Schedule 8 incentives are transmitted across Network Rail as an organisation and to Network Rail's suppliers, and how this can be improved

(d) Paragraph 17 of the Schedule 8 template enables either party, at any time, to request a change in payment rates. We will review whether paragraph 17 should be changed so train operators may only request changes to payment rates when there are data quality issues caused by material changes to train services.

[53] Part H sets out a requirement for Network Rail, in consultation with the industry, to establish a Railway Operational Code (the "ROC"). The ROC has the objective of sustaining operation of train services on the network in accordance with the working timetable, as well as where necessary restoring operation in accordance with the working timetable, having regard to the needs of passengers and freight customers; the interests of safety and security; the efficient and economical operation of the network and of trains operating on it; and criteria published by the Office of Rail Regulation.

(e) Whether it would be appropriate to establish a set of principles for attributing delays between Network Rail and train operators that operate partially off the Network Rail infrastructure, and if so, what these principles should be.

(f) We will also look into whether simple changes to Schedule 8 can be made to help deal with the following:

(i) The contractual provisions for dealing with extreme disruption so that all parties are incentivised to run the best possible timetable when the network is degraded, e.g. due to extreme weather

(ii) Whether provisions for cancellations caused by train operators to their own trains should be changed or removed. Cancellations by train operators currently have an impact on Schedule 8 payments even when they do not have an adverse effect on other train operators.

5.62. We want to avoid making the Schedule 8 performance regime too complicated. For this reason, and taking into account of the fact consultation responses have not suggested any significant benefits would result from them, we do not propose to make the following changes to the Schedule 8 regime:

(a) Introduce a kinked payment curve in the passenger regime. No support was expressed for this in consultation responses and concerned this might make the Schedule 8 regime overly complicated. We are not aware of any evidence that there is a level of performance at where the further improvements in performance on revenue diminish.

(b) Have a different structure of the regime for long distance and other passenger operators to reflect different perceptions of passengers. There would be practical difficulties in assigning service groups as long distance or short distance and this would be further complicated by the fact an individual train may contain a mixture of long distance and short distance passengers. While there is evidence to suggest long distance passengers view delay differently to short distance passengers, this is to some extent captured by the fact we estimate payment rates based on responsiveness of passengers buying different ticket types and travelling at different times to delay. Also, we believe this issue can be addressed by ensuring we give train operators and Network Rail the flexibility to agree bespoke modifications to Schedule 8 in instances where they have evidence that their passengers do not respond to delays in the way assumed by the Schedule 8 regime.

(c) Make changes to the capping regime to make it function more effectively. Train operators are already able to request a cap to bonus payments to Network Rail if accompanied by evidence that revenue is not responding to performance in the way assumed by Schedule 8, for example where significant overcrowding occurs. The responses to the consultation did not suggest changing this.

(d) Linking Schedule 8 payments to delay repay payments to passengers. This is not something we referred to in our May consultation. In practice it would be very complex as delay repay payments are based on lateness being over a certain threshold; individual passenger journeys (which can involve more than one train); and whether passengers make a claim. Schedule 8 payments, on the other hand, are based on minutes lateness of particular train services. Given the relative infrequency of delay repay payments we are not of the view that it would be beneficial to make the Schedule 8 performance regime more complex in this respect, particularly given that during times of sustained poor performance, when the SPP threshold is exceeded, train operators may factor delay repay payments into their claims. No train operators suggested that Schedule 8 payments should be linked with delay repay payments in their consultation responses.

5.63. In our May consultation we questioned whether financial protections put in place in new franchise agreements should be relaxed so franchised train operators benefit from changes to the performance regime. This is something that is controlled by franchising authorities rather than us but we welcome the opportunity to work with them to reduce the regulatory burden associated with these mechanisms, whilst recognising our statutory duty to allow operators to plan their businesses with a reasonable degree of assurance.

5.64. Table 5.5 summarises the issues we plan to look into further with the industry and the proposed timing of this

Table 5.5 – Issues relating to Schedule 8 we propose to review further with the industry

Issue	For further review?	Proposed Timing
How we respond to requests for bespoke Schedule 8 arrangements, particularly in the presence of joint ventures or alliances, and ensuring we remove any unnecessary barriers that may currently exist with respect bespoke arrangements.	Yes	Identify key issues by April 2012. Work complete by draft determination.
The relationship between Schedule 8 and other regimes such as Joint Performance Improvement Plans (JPIPS), part H of the Network Code and Schedule 4 and how well they are aligned	Yes	Review by April 2012, with possibility of further work to be completed by draft determination
The Sustained Poor Performance Threshold (SPP) and the level it should be set at	Yes	Work complete by draft determination.
Whether it is appropriate and practical to introduce a time lag on Schedule 8 payments, and if so, what the lag should be	Yes	Work complete by draft determination.
Whether the size of Schedule 8 compensation and bonus payments should be reduced to a level below the revenue impact of above or below benchmark performance	Yes	Decide whether to do this by April 2012. Work complete by draft determination.
How well Schedule 8 incentives are transmitted across Network Rail and to suppliers	Yes	Work complete by draft determination.
Alter the contractual provisions for dealing with severe disruption so all parties incentivised to run the best possible timetable	Yes	Decision on whether minded to do this and establish work programme by April 2012. Work complete by draft determination.
Decision on whether to change contracts so cancellations caused by train operators to their own trains do not have an impact on Schedule 8 payments.	Yes	Decision on whether minded to do this and establish work programme by April 2012. Work complete by draft determination.
Whether paragraph 17 of Schedule 8 should be changed so train operators may only request changes to payment rates when there are data quality issues caused by material changes to train services.	Yes	Decision on whether to do this by April 2012. Work complete by draft determination.
Whether it would be appropriate to establish a set of principles for attributing delays between Network Rail and train operators that operate partially off the Network Rail infrastructure	Yes	Decision on whether minded to do this and establish work programme by April 2012. Work complete by draft determination.
Consider whether there are incentives beyond Schedule 8 that could be adjusted, or newly established to further encourage	Yes	Work complete by draft determination (as part of PR13 more widely, rather than review of

Issue	For further review?	Proposed Timing
Network Rail to minimise disruption due to poor performance.		Schedule 8)
Introduce a kinked payment curve for the passenger regime	No	
Have a different structure of the regime for long distance and other passenger train operators	No	
Make changes to the capping regime to make it function more effectively	No	
Link Schedule 8 payments to delay repay payments	No	

Schedule 4

5.65. Issues discussed in our May consultation that we intend to review further are as follows:

(a) Whether adequate incentives are placed on Network Rail by the regime to reduce the length of the possessions to a level which is financially optimal for the industry as a whole, including in relation to notification thresholds;

(b) Whether compensation thresholds are set to the right level. This includes notification discount thresholds, which are applied to Network Rail's Schedule 4 payments to reflect the amount of notice it gives to train operators regarding possessions, and the SPD threshold;

(c) Access charge supplements**,** including their role and purpose and the level of accuracy associated with their calibration.

(d) Whether compensation rates should be reduced to increase the incentives for operators to allow innovative timetabling solutions to be explored as an alternative to other solutions;

(e) Practical issues around modifying Schedule 4 or replacing it with a bespoke regime, particularly in the presence of joint ventures or alliances.

5.66. As a result of consultation responses and discussions at our workshops, there are other issues, not raised in the May consultation, that we wish to discuss further with the industry:

(a) Whether we should further encourage Network Rail and train operators to minimise disruption due to possessions by adjusting or creating incentives beyond Schedule 4.

(b) How well Schedule 4 incentives are transmitted across Network Rail as an organisation and to Network Rail's suppliers, and how this can be improved

(c) Whether simple changes can be made to the contractual provisions of Schedule 4 for dealing with extreme disruption so that all parties are incentivised to run the best possible timetable when the network is degraded e.g. due to extreme weather.

5.67. Taking into account of the fact consultation responses have not suggested any significant benefits would result from them, we do not propose to review further the following issues raised in our May consultation.

(a) Whether a free possessions allowance should be reintroduced. No stakeholders expressed support for returning to a free possessions allowance. Reintroducing this allowance would mean that while working within the allowance, Network Rail would not have to make Schedule 4 payments to

compensate for disruption due to possessions. This means Network Rail would no longer have the incentive to minimise disruption, even when it makes financial sense for the industry as a whole.

(b) The effectiveness of both the negotiation and enforcement process. We do not have any reason to be concerned that the current system prevents Network Rail and operators reaching agreement when negotiating and agreeing compensation. We have also not received any responses from the industry to suggest there are any issues.

5.68. Table 5.6 summarises the issues we propose to look into further with the industry and the timing of this

Table 5.6 – Issues relating to Schedule 4 we intend to review further with the industry

Issue	For further review?	Proposed completion date
Identify and overcome any practical issues around modifying Schedule 4 or replacing it with a bespoke regime, particularly in the presence of joint ventures or alliances	Yes	Identify key issues by April 2012. Work complete by draft determination.
Whether compensation thresholds are set to the right level, including notification discount thresholds and the SPD threshold	Yes	Identify key issues by April 2012. Work complete by draft determination.
Access charge supplements, including their role and purpose and the level of accuracy associated with their calibration	Yes	Decision on whether minded to do this and establish work programme by April 2012. Work complete by draft determination.
How well Schedule 4 incentives are transmitted across Network Rail and to suppliers	Yes	Work complete by draft determination
Alter the contractual provisions for dealing with severe disruption so all parties incentivised to run the best possible timetable	Yes	Decision on whether minded to do this and establish work programme by April 2012. Work complete by draft determination
Whether the compensation rates should be reduced to increase the incentives for operating companies to allow innovative timetabling solutions to be explored as an alternative to other solutions.	Yes	Decide whether to do this by April 2012. Work complete by draft determination.
Consider whether there are incentives beyond Schedule 4 that could be adjusted, or newly put in place to further encourage Network Rail and train operators to minimise disruption due to possessions.	Yes	Work complete by draft determination. (as part of PR13 more widely, rather than review of Schedule 4)
Whether a free possessions allowance should be reintroduced. There was no support for this from stakeholders	No	
The effectiveness of the negotiation and enforcement process	No	

Questions

5.69. The questions raised in this chapter are summarised in the box below.

Chapter 5: Questions for stakeholders

Q5.1: Do you think that the current possessions and performance regime broadly help to align incentives between operators and Network Rail in the best interest of customers, funders and society? If not, why not?

Q5.2: Do you think it is appropriate to retain Schedules 4 and 8 as liquidated sums compensation regimes?

Q5.3 Do you think it would benefit customers, funders and society and encourage greater co-operation if Schedule 8 compensation rates from Network Rail to train operators did not reflect the full impact of possessions on revenue and costs? We also welcome any further views on this issue in relation to Schedule 4.

Q5.4: Do you think existing incentives are as effective as they can be in ensuring that Network Rail and train operators perform at a level that is economically and socially optimal, and whether they sufficiently drive Network Rail behaviour? In particular, we invite views on whether we should place further incentives on Network Rail to ensure it fully takes into consideration the impact of service disruption on passengers, i.e. disruption above that already reflected in Schedules 4 and 8 compensation payments for loss of fare revenue, and how we could go about doing this.

Q5.5: Do you envisage any barriers to modifying or replacing the Schedule 4 and 8 regimes in cases where both a train operator and Network Rail wish to? What do you see as the advantages and disadvantages of bespoke approaches? Do you agree with our proposal regarding the circumstances when we will approve bespoke Schedule 4 and 8 arrangements?

6. Access charges

Key messages from this chapter

- Access charges play a key role in the interface between Network Rail and its customers. Their level and structure has a significant effect in driving behaviour.
- Track access charges and regulated station charges are currently determined by us for the entire control period, and are calculated using default models that have been audited and approved;
- We can envisage circumstances in which charges calculated on a bespoke basis may be more appropriate, and we suggest some principles to which the bespoke charges should adhere.
- More bespoke arrangements might not lend themselves to periodic determinations by us. We consider how such arrangements might be dealt with in future periodic reviews, with a view to proving greater flexibility.

Introduction

6.1. As part of our periodic review we determine regulated access charges, which operators are required to pay to Network Rail to access the infrastructure. As well as being an important component of Network Rail's revenue, charges have the potential to be one of the principal mechanisms for aligning incentives of passenger and freight operators and of Network Rail, in particular with respect to whole industry costs and capacity allocation.

6.2. Repeatedly in this consultation we are exploring whether different aspects of our existing approach to aligning incentives will remain effective in a rail industry that is subject to reform. The RVfM study argued that Network Rail's working more closely with operators has the potential to drive better outcomes for customers and funders. We are using this consultation to investigate the extent to which we should seek to facilitate bespoke arrangements to support such reforms, whether in the context of charges, performance and possessions regimes, or alignment of costs and revenues. In this chapter, we discuss the extent to which we should enable a more flexible approach to approving track access charges to support closer working of this kind, and we seek consultees' views. We also note that progress has been made with respect to the PR13 charges workstream more generally.

6.3. The remainder of this chapter is structured as follows:

(a) we describe the structure of charges, the way in which they are determined, and the respective roles of ORR and Network Rail. We refer back to the May consultation (on which we will conclude in our forthcoming document setting out the regulatory framework for PR13) and note progress made with respect to the PR13 charges workstream; and

(b) we then explore the case for increased flexibility in the setting of charges.

Setting charges in PR13

6.4. The purpose of this section is to:

(a) outline the structure of track and station access charges and how they are determined (this information is set out in more detail in Annex F of our May consultation); and

(b) note activities undertaken subsequent to the May consultation, and the status of different components of the PR13 charges workstream.

We determine track access and station long term charges[54] as part of a periodic review of Network Rail's revenue requirement, and the way in which that revenue is recovered. The charges are then published prior to the start of the control period. The Schedule of charges and price lists applies to the entire control period. Table 6.1 lists access charges and associated income.

Table 6.1: Access charges income in 2010-11

Charge	Purpose of charge	Actual income (£ millions)
Variable usage charge Of which: - *franchise* - *freight* - *open access passenger*	Recovers maintenance and renewal costs that vary with traffic	137 *92* *41* *4*
Traction electricity charge (passenger and freight)	Recovers the costs of providing electricity for traction purposes	218
Capacity charge (passenger and freight)	Reflects the incremental Schedule 8 costs incurred by Network Rail as a result of incremental changes in traffic on the network	158
Fixed track access charge (franchised passenger only)	Determined on basis of Network Rail's total revenue requirement	912
Other (electrification asset usage charge; coal spillage charge; freight only line charge)	Recovers associated costs	8
Station long term charge	Recovers station maintenance, repair and renewal	135
Network grant	Paid direct by government in lieu of fixed charges	3,779
Total		**5,382**

6.5. Under the financial adjustment mechanism ("Schedule 9") in franchises, franchise payments to operators are adjusted to take account of the net total financial impact of the changes to charges

[54] The station long term charge is payable to Network Rail to enable it to recover the costs of maintaining, renewing, and repairing the stations it owns, as well as the recovery of some or all of the additional costs where enhancements are made at stations. The charge is paid by those operators that regularly use a station, in proportion to their use.

determined at the periodic review for the services specified in their franchise. The financial impact for any service changes, to the degree that they are permitted by the franchise agreement, are not taken into account in the adjustment.

6.6. In accordance with EU legislation,[55] track access charges are calculated on the basis of costs directly incurred. Mark-ups are permitted to be levied on these charges, provided such mark-ups do not exclude from using the infrastructure operators who can pay at least the costs directly incurred plus a rate of return.

6.7. In Annex F of our May consultation, we described the structure of charges and discussed some individual charges. We are concluding on this consultation in our forthcoming document setting out the regulatory framework for PR13. The current status of key changes we are considering is set out in Table 6.2.[56]

Table 6.2: Status of key charging policy options presented in our May consultation

Charging policy option	Current status
Geographic disaggregation of variable usage charge	Network Rail is asking us for clarity on this policy as it is critical to their project planning. We are discussing this with Network Rail, and will announce when we are concluding on this matter in early 2012.
Improving incentives associated with charging for electricity for traction	We will respond to the consultation and state our intended way forward in our forthcoming document on the regulatory framework for PR13.
Strengthening the incentives relating to use of capacity	We discuss this further in chapter 7.
Open access passenger operators contributing to meeting infrastructure fixed costs	See our on-rail competition consultation. This consultation is now closed.[57] We will conclude in our forthcoming document on the regulatory framework for PR13.

6.8. The responsibility for setting charges is shared between ORR and Network Rail. In May 2011, following an earlier consultation, we set out how the responsibility would be shared in PR13[58]. In particular Network Rail has responsibility for developing charging proposals in line with our charging objectives and guidance. We retain responsibility for developing new charge proposals, and we also audit and approve final charges.

6.9. We set out our charging objectives for consultation in May 2011. These were to:

(a) promote the objectives of our duties under section 4 of the Railways Act 1993 and be consistent with the wider objectives of funders;

[55] Directives 91/440 and 2001/14, implemented in the UK by the Railways Infrastructure (Access and Management) Regulations 2005, as amended.

[56] As listed in paragraph F.4 of the May consultation.

[57] http://www.rail-reg.gov.uk/pr13/consultations/orr017.php

[58] http://www.rail-reg.gov.uk/server/show/ConWebDoc.9951

(b) incentivise Network Rail, train operators, train manufacturers, rolling stock companies (ROSCOs) and funders to ensure the efficient utilisation and development of the network and the optimisation of whole industry costs;

(c) not discriminate between users of the network;

(d) be practical, cost effective, comprehensible and objective in operation;

(e) be consistent with relevant legislation, including the EU Directive 2001/14/EC;

(f) reflect the efficient costs caused by use of the infrastructure (both to Network Rail or otherwise); and

(g) ensure that charges enable Network Rail to recover but not to over recover, its allowed revenue requirement.

6.10. Network Rail and the wider industry are progressing with the development of the structure of charges for PR13. Some important developments since the May consultation are:

(a) the industry has established monthly meetings (currently chaired by ATOC and organised by Network Rail) to engage on matters relating to the access charges workstream in PR13; and

(b) as noted in our May consultation, we are considering whether to publish an early cap on the overall level of certain freight charges. We have appointed consultants to test the sensitivity of demand in different freight markets to changes in track access charges. Network Rail is carrying out the cost modelling to support this work, and is currently consulting on its estimates.[59]

Allowing greater flexibility in the setting of charges

Introduction

6.11. In this section, we explore the merits of adopting a more flexible approach to approving charges. We start by explaining how charges are approved currently, and note issues raised in our consultation of April 2011 on charges for modified vehicles[60]. We explore circumstances in which bespoke arrangements might be better than charges calculated on a default basis, and discuss the principles we should use to approve charges calculated on a bespoke basis. We then end by considering how such bespoke arrangements should be dealt with through a periodic review.

Scope for modifying charges under the existing regulatory framework

6.12. In PR08 our intention was to set charges for the entire control period, with little scope for change. We implemented this, following our periodic review final determination, by amending all passenger and freight track access contracts to refer to the charges price lists, as published on a specific date in advance of the control period.[61]

6.13. In the passenger contract, the process for effecting a supplement to certain price lists[62] is set out in Paragraph 9 in Part 2 of Schedule 7 of the model track access contract. The specific circumstances to which the process relates are raised in the contract wording:

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[59] http://www.networkrail.co.uk/PeriodicReview2013.aspx

[60] http://www.rail-reg.gov.uk/server/show/ConWebDoc.10375

[61] For CP4, the price lists were published by Network Rail on 18 December 2008, see http://www.networkrail.co.uk/CP4_Price_list_charges. They are adjusted each year by RPI, as set out in the track access contract.

[62] The track usage price list, the price list for the capacity charge and the traction electricity consumption rates.

(a) so as to include a vehicle category which is not included in the price lists; and

(b) to correct any manifest error.

6.14. In the freight model contract, there is a process for including a new vehicle category, but not for correcting an error[63].

6.15. For new vehicles, we have approved vehicle specific charges (namely the variable usage charge and the traction electricity charge) that have been calculated on a consistent basis to charges for existing vehicles. This has meant that new variable usage charges have been calculated using the PR08 charging model that Network Rail refined and populated, and we have approved.[64] There have been few cases of new vehicles requiring traction electricity charges in CP4, but where these have occurred we have taken a more pragmatic approach, approving rates that compare logically to the rates for similar vehicles.

6.16. There is also some scope to change charges, within limited parameters, through a re-opener in the track access contract. We decided on this approach in our PR08 final determination with respect to the coal spillage charge. We required Network Rail in CP4 to review the charge annually to take account of new evidence concerning incidence of points failures, though we are only willing to approve a new rate that is below that specified in our final determination[65].

6.17. Under section 22 or section 22A of the Railways Act 1993, any changes to the track access contract, or regarding matters that would normally be included in the track access contract, require our approval. Without our approval such deals are void and legally unenforceable.

The case of variable usage charges for modified vehicles

6.18. Variable usage charges are designed to recover Network Rail's operating, maintenance and renewals costs that vary with traffic. In PR08 we approved a separate charge for each vehicle type, and for freight vehicles the charge is also differentiated by commodity and whether they are loaded or not. The charges were calculated using the PR08 charging model. The model takes into account a number of vehicle characteristics that influence track damage, including speed, weight, curving class and unsprung mass. The model does not take account of track characteristics, and is the same rate irrespective of location.

6.19. Hence, a more track-friendly vehicle should ordinarily be charged at a lower rate. For example the charging model used to calculate the variable usage charge works so that a vehicle with track-friendly bogies pays a lower charge than an equivalent vehicle without this feature. We know from anecdotal evidence that the variable usage charge has contributed to the purchase and deployment of more track friendly rolling stock, and thus has incentivised reduction of whole industry costs.

6.20. In some circumstances, operators are able to modify their vehicles to reduce infrastructure costs. They will only be incentivised to do so, however, if they receive associated financial reward. We have signalled our willingness to approve supplements to the track access contracts for new variable usage charges for modified vehicles, reflecting the reduced wear and tear costs of the vehicles. DfT has also supported such initiatives on a case by case basis.

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[63] Paragraphs 2.2.2 to 2.2.12, http://www.rail-reg.gov.uk/upload/pdf/ta-fgtmodcntrct-051011.pdf

[64] In practice a charging tool, consistent with the charging model, has been made available to operators because the charging model contains data confidential to vehicle manufacturers.

[65] Paragraph 19.52 , Determination of Network Rail's outputs and funding for 2009-14; http://www.rail-reg.gov.uk/upload/pdf/383.pdf

6.21. We consulted on this topic in April this year.[66] In the consultation we proposed to approve charges for newly modified vehicles outside a periodic review subject to certain conditions. We said that we were willing to approve charges that were not calculated using the charges calculator if it were agreed by the operator and Network Rail, it were cost reflective, transparent and non-discriminatory[67]. Network Rail and the operator may wish to do this, for example, if they consider that the charges calculator understates the benefits of vehicle modification. To give operators greater certainty regarding payback on their investment, we also proposed to commit to retaining the charge differential in CP5 between the unmodified and equivalent modified vehicles.

6.22. In the consultation on vehicle modification we stated that in principle we are supportive of bespoke deals between operators and Network Rail that deliver benefits to the industry and/or railway customers, including deals associated with vehicle modification[68]. We said we would not, however, expect to consent to a bespoke arrangement that includes substitutes for track access charges determined through the periodic review.

6.23. Consultees responded positively to our proposals for charges for vehicle modification, with the exception of our statement regarding bespoke arrangements. In the latter case, Network Rail and ATOC argued for greater flexibility to permit bespoke arrangements. Some freight operators expressed concern that bespoke arrangements may result in undue discrimination. We are reflecting on this topic further, and open it up to wider consultation through this document.

Circumstances in which bespoke charges may be merited

6.24. It is possible, even under the current framework, for Network Rail and its customers to agree bespoke arrangements that depart from the standard access contract. We would need to approve any such arrangements. If we were to approve bespoke arrangements that included substitutes for approved track access charges, we would expect them to comply with certain broad principles that we established in advance. Before suggesting what those principles might be, it is instructive to think about the circumstances in which bespoke arrangements may be merited. We can think of the following possible examples.

(a) *Where Network Rail and the operator do not consider the charges to be sufficiently cost reflective.* This could be, for example, because the charges are averaged over different types of track. This issue would principally arise for new vehicles, vehicle modification or new services / services that might be discontinued. In the case of existing services that were not under threat, a change to the charge would represent no more than a transfer of funds from one party to another, and therefore unlikely to be agreed.

(b) *An alliance between Network Rail and an operator.* In these circumstances, Network Rail and the operator may choose to review a wide range of commercial arrangements, and that may include reviewing charges for existing services.

(c) *Where Network Rail is willing to finance vehicle modification or rolling stock redeployment to reduce track damage.* Bespoke arrangements may be needed to facilitate such financing. (In this example, we would also need to consider the wider implications of such a deal, including financing of Network Rail's regulatory asset base.)

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[66] See our consultation letter at http://www.rail-reg.gov.uk/upload/pdf/variable_usage_charge_060411.pdf ; and consultation responses at http://www.rail-reg.gov.uk/server/show/ConWebDoc.10375

[67] See paragraph 11 of the consultation letter.

[68] We noted that we would of course need to consider proposed bespoke deals that resulted in dis-benefits to customers or had other negative consequences, such as asset deterioration, in greater depth and consult relevant stakeholders, including funders.

(d) *Where Network Rail, and operator and potentially a funder agree to reconfigure services to improve performance.* Under such circumstances, bespoke arrangements for capacity charges may be merited.[69]

6.25. There is already some precedent for bespoke arrangements in the context of station charges, usually linked to specific investments (for example, the recently opened Southend Airport Parkway, which was promoted by a third party). The recent enhancement project funded by Chiltern Railways ('Project Evergreen 3'), is a more extensive example of where bespoke agreements have been employed to ensure that the charging framework does not form an obstacle to investment.

Principles for approving bespoke arrangements

6.26. Bespoke arrangements could provide a valuable way of better aligning incentives between Network Rail and operators. In general, we are keen to facilitate such arrangements. In approving any bespoke arrangements, we would need to balance our statutory duties and comply with relevant legislation on charges, including requirements that charges are transparent and non-discriminatory. An important implication of the latter is that different operators running equivalent services would be charged on an equivalent basis.

6.27. In the early years following rail privatisation, charges were approved through bespoke arrangements rather than published price lists. We moved away from that approach, because we found that the bespoke arrangements had significant transaction costs, could lack transparency, and could result in arbitrary variations that lacked rationale. In setting the principles to approve bespoke charges, we are resolved to avoid these disadvantages. An important difference between the earlier experiences and what we are considering here is that we would continue to set prices using price lists, and operators would have the choice as to whether to enter into bespoke arrangements. Thus, if either party did not wish to enter into negotiations for bespoke arrangements, an 'off-the-shelf' alternative would be available.

6.28. We note that the European Commission is in the process of negotiating a recast of the first railway package, including legislation relating to track access charges. As part of this, the European Commission is proposing that charges be set for a minimum period of a number of years (potentially three), and we would need to ensure that any bespoke arrangements were compliant with the requirements in this area.

6.29. In our consultation on vehicle modification, we proposed circumstances in which we would approve a variable usage charge that had not been calculated using the PR08 charging model. Adapting the wording to the wider context of bespoke arrangements more generally, suggests that we could apply the following principles in deciding whether to approve bespoke arrangements:

(a) the charge is agreed by the operator and Network Rail;

(b) the charge is calculated using the same overarching principles that underpin the PR08 charging model, namely that it is derived from track wear and tear costs;

(c) the evidence provided is objective, transparent and well founded. This may include evidence based on expert judgement, provided that the process for establishing the expert judgement is set out, the experts involved are identified, and differences between their judgement and charging model outputs are explained; and

(d) the associated reduction in charges calculated can be applied in a way that does not result in undue discrimination.

[69] Under current arrangements, capacity charges are levied for passenger services by service group; any move away from that would require, potentially quite substantial, development of Network Rail's billing software.

6.30. These principles could be adhered to in a number of circumstances we discussed in the previous section. They relate specifically to the variable usage charge and would need to be adapted to cover other charges (to the extent that it is possible to do so without being discriminatory). They would not address the issue of Network Rail financing vehicle modification, but we consider that to be a matter best dealt with separately from charges (for example through the Investment Framework[70] or through CP5 funds, a number of which have been proposed in the IIPs.)

6.31. We seek views on our assessment of the scope for bespoke charges. We also seek views on whether an approach in which we approve bespoke charges that adhere to certain principles would be helpful, and on what those principles should be.

Treatment of bespoke arrangements at a periodic review

6.32. We currently determine track access charges as part of the periodic review of Network Rail's funding and outputs. The structure of charges is such that determination of Network Rail's revenue requirement has very little connection with the determination of variable charges. The fixed charges, which are set to total Network Rail's net revenue requirement, reconcile the two.

6.33. The existing legislative framework is such that charges can only be set as part of a periodic review or with agreement of the contract parties. In the former case, it is possible, as with the coal spillage charge for CP4, to set the *approach* to charges at the time of the periodic review and to calculate the *level* of the charges subsequent to the review on the basis of particular evidence as it emerges.

6.34. The existing framework results in us re-determining charges, subject to industry consultation and due process, every control period. To manage the risk associated with this process, franchise authorities have to date adjusted funding (under Schedule 9 of the franchise contact, the franchise adjustment mechanism) so that the charging review results in no net financial impact for franchisees.

6.35. We want to reflect on whether this arrangement remains appropriate in the context of closer working between Network Rail and operators, including in alliances, and in the context of longer franchises. In particular, we need to consider how any approved bespoke arrangements regarding charges and other matters should be treated as part of a periodic review[71]. We would not want to approve arrangements for the subsequent control period that resulted in cross subsidy from operators that were not party to the arrangements.[72] There may be cases, however, where arrangements are cross reflective over control periods, but are not cost reflective intra-control period, for example if they are fixed for a number of years.

6.36. We are at early stages of considering this topic, but would be interested in views on how we should treat bespoke charging arrangements that might span Network Rail control periods.

Questions

6.37. The questions raised in this chapter are summarised in the box below.

Chapter 6: Questions for stakeholders

[70] The investment framework relates to funding investments between periodic reviews, see http://www.rail-reg.gov.uk/upload/pdf/investment_framework_guidelines_october_2010.pdf

[71] In the context of the vehicle modification consultation, we proposed dealing with this issue through retaining or increasing charging differentials in CP6.

[72] For example, if costs increased over time, but they were not reflected in the bespoke charges.

Q6.1: In what circumstances do you think bespoke charging arrangements are likely to occur? What advantages and disadvantages could such arrangements have? How might they work for or against the alignment of incentives?

Q6.2: What protection do you think might be needed for third parties not included in the scope of a bespoke arrangement?

Q6.3 Do you agree that it would be helpful for us to set out a set of principles on the basis of which we would decide whether to approve bespoke arrangements? Do you have any views on what those principles should be?

Q6.4 How do you think we should treat bespoke charging arrangements that might span Network Rail control periods or change within control periods?

7. Capacity utilisation incentives

Key messages from this chapter

- Network capacity is a limited resources and it is important that we incentivise its efficient allocation and usage.
- The incentives framework determined as part of PR13 has the potential to have a major influence on how rail infrastructure capacity is used.
- We will review the volume incentive, which is the incentive for Network Rail to accept extra traffic onto the network. We propose to disaggregate it by Network Rail route.
- We continue to support the rationale for the capacity charge, which reflects costs associated with reactive delay.
- We do not intend to consider an option for Network Rail to share train operators' revenue further as part of PR13.
- We are not minded to proceed with a reservation charge as part of PR13, though are conducting further research on path utilisation to confirm our view.
- We will research the extent to which infrastructure capacity is under-utilised before deciding whether to act to develop indicators to monitor capacity utilisation.
- We welcome views, additional to those already expressed in responses to our May consultation, on the policy we are considering further to levy a charge to incentivise better use of capacity.

Introduction

7.1. Since the mid-1990s more and more journeys have been made using rail. On large parts of the rail network, while the number of services have increased (for example, train km have increased by over 10% since 2003-04), passenger demand has increased by more (around 30% since 2003-04). On large parts of the rail network, there is now insufficient capacity to run all the services that passenger and freight customers demand.[73] In this context, it is important to use capacity efficiently, thereby maximising benefits to rail customers, society and funders.

7.2. Information on the types of capacity constraints affecting the network is provided in each of Network Rail's published route utilisation strategies (RUSs).[74] The main indicator of an infrastructure capacity

[73] For example the London and South East RUS (July 2011) reports that many routes have demand outstripping capacity (because services are crowded) at peak times.

[74] RUSs are listed at: http://www.networkrail.co.uk/browseDirectory.aspx?root=&dir=%5cRUS%20Documents%5cRoute%20Utilisation%20Strategies%5cRUS%20Generation%202

constraint is overcrowded trains. But the underlying cause can take many forms. For example constraints on the approaches to terminal stations, physical obstructions that prevent platform lengthening, insufficient platform capacity, restrictive signalling headways, lack of rail freight looping capability and single line sections are all cited in the second generation of RUS reports as reasons why capacity may be insufficient.

7.3. The rail industry and government have developed a number of procedures to decide how they would like capacity to be allocated and to identify where investment should be made to increase capacity. Efficient and effective use of capacity is important because it can increase benefits to passengers and freight customers overall, for example by providing more train services. It also has the potential to increase rail's value for money by increasing industry revenue. We discuss what we mean by efficient use of capacity in Box 7.1.

7.4. The incentives framework determined as part of PR13 has the potential to have a major influence on how rail infrastructure capacity is used. For example, an operator might respond to the incentive by running longer less frequent services, thereby releasing capacity for another operator to use. Or it may incentivise Network Rail, in its role as systems operator, to revisit the timetable to identify opportunities for additional services.

7.5. In this chapter we build on our May consultation to consider the case for using certain incentive mechanisms to promote better use of capacity. In developing our thinking in this area, we commissioned consultants NERA to prepare a report on capacity utilisation incentives[75]. We also held a small workshop to discuss NERA's work. We will respond in full to consultees' views on capacity utilisation incentives, relating to both this consultation and our May consultation, in our forthcoming regulatory framework document.

Box 7.1: What is efficient use of capacity?

We would ordinarily consider there to be an improvement in, or an increase in, the efficiency of capacity utilisation if an economic appraisal of the change found it to have a net benefit. This would take account of all material impacts, including impacts on

- rail customers;
- industry costs and revenues (and hence potentially funders' costs); and
- wider society,

taking account of factors such as administrative costs and risk.

Efficient allocation of capacity helps improve capacity utilisation, but access rights can span ten years or more and so may not be responsive to changes in the market

7.6. The rest of this chapter is structured as follows.

(a) we start by explaining the current framework within which existing capacity is allocated, and how decisions to increase capacity are made;

(b) we then consider the case for change, to increase the role of financial incentives in allocating capacity;

[75] We will be publishing NERA's report shortly.

(c) we discuss options to incentivise capacity utilisation; and

(d) we summarise our policy proposals.

7.7. In September we issued a consultation on on-rail competition[76]. In that document we set out an approach to capacity allocation (and fixed track access charges) that would facilitate greater on-rail competition. Broadly, the model involved auctioning incremental capacity, i.e. capacity over and above that required to operate franchised services and existing open access passenger services. The auction would establish the value of that capacity to customers who would pay a fixed track access charge that would reflect this value. We created this model to demonstrate how greater on-rail competition might be facilitated. But there is a significant cross-over between that document and the material we cover here.

The current regime

7.8. In this section we set out the basis on which capacity is allocated and enhanced. We then note some other procedures and regimes that have a notable influence on capacity.

7.9. The key determinant of the way passenger services use capacity is the service specification in franchise contracts. Services specified in the franchise have tended to be either stated as requirements in the tendering invitations for new franchises (with the services having been subject to economic appraisal), or offered by bidders during the franchise competition. In addition, our policy regarding on-rail competition, including our "not primarily abstractive" tests[77], has an important influence on the type of services run by open access passenger operators.

7.10. Established freight operators have a portfolio of contractual access rights, which under Part J of the Network Code are subject to regular reviews with Network Rail. Operators use these rights to request paths in the timetable. They also use train operator variations (formerly known as spot bids) to obtain short term rights. In some freight markets in particular, more access rights are held than are actually used. This, at least in part, reflects operators' need for flexibility to respond to daily variations in customers' demand.

7.11. Network Rail has responsibility for developing timetables (the timetabling process is set out in Part D of the Network Code) and seeking to accommodate access requests. We have powers to direct applications, including making decisions with respect to alternative uses of capacity.

7.12. Major recasts of the timetable occur infrequently, for example the May 2011 recast to the East Coast timetable, but for the most part timetables change incrementally.

7.13. Part J of the Network Code relates to changes in access rights. It includes a number of provisions to facilitate changes in access rights including "use it or lose it" rules and access rights reviews. We have being reviewing Part J and published our emerging conclusions in August this year[78]. We plan to publish our formal proposal for change shortly.

7.14. RUSs (which are in the process of being replaced by new procedures) were prepared by Network Rail through extensive stakeholder engagement. They identified and assessed options for providing

[76] "The potential for increased on-rail competition", ORR, October 2011 http://www.rail-reg.gov.uk/pr13/consultations/orr017.php.

[77] New open access services, as well as some services by franchise operators, are required to pass this test, which relates to levels of revenue abstracted from incumbent services. The test is described in our "Review of access policy: Phase 1 final conclusions", November 2010, http://www.rail-reg.gov.uk/upload/pdf/access_policy_final_conclusions_nov2010.pdf

[78] http://www.rail-reg.gov.uk/server/show/ConWebDoc.10282

additional capacity, and formed the foundation of schemes contained in the IIPs. These in turn support the development of the HLOSs produced by DfT and Transport Scotland for the periodic review.

7.15. Some enhancement schemes are developed and funded outside the periodic review through the Investment Framework[79], whilst Network Rail is free to develop schemes that are self-financing outside of periodic review.

7.16. Track access charges provide incentives regarding the use of capacity. Variable charges reflect costs directly incurred, notably wear and tear costs of using the track. One of the variable charges, the capacity charge, reflects costs directly incurred but has characteristics similar to that of a congestion charge[80]. Regulation of Network Rail's performance also affects its timetabling decisions when considering the trade-off between capacity utilisation and risk to performance.

7.17. A further development is the industry process through which Network Rail is to provide stakeholders with an indication of strategic spare capacity that could be used for new services during the timetable development process. This is set out Part D of the Network Code.

The case for change

7.18. In our May consultation for PR13, we asked stakeholders to consider (among many other things) "how the effectiveness of Network Rail's incentives to make best use of capacity could be improved". Some consultees questioned whether we had identified a problem we were trying to address. In response to their feedback, in this section we set out and explore circumstances in which, if applicable, reform may be merited. Three different rationales are listed in Box 7.2. In this section we consider each in turn.

[79] The investment framework consolidated policy and guidelines consultation can be found at: http://www.rail-reg.gov.uk/server/show/ConWebDoc.10081

[80] An increase in traffic causes an increase in reactive delays (delays resulting from other delays), which in turn causes an increase in Network Rail schedule 8 payments (compensation paid for service delays and cancellations) without any change in Network Rail's underlying performance. The capacity charge is intended to compensate Network Rail for the marginal effect of changes in traffic on its schedule 8 payments.

Box 7.2: Why reform capacity utilisation incentives?

We should consider reforming capacity utilisation incentives:

- **If there is a problem with how capacity is used currently:** is there evidence that capacity is being under-used, or used inefficiently?
- **If the mechanisms for allocating capacity could be improved:** could market mechanisms complement and / or improve on current administrative procedures?
- **If capacity allocation procedures and incentives require updating to complement other reforms to the industry** in particular franchise reform

The existence of any or all of these conditions does not in itself justify reform. We will need to consider whether the benefits of any proposed reform exceed its costs, taking into account risks and potential unintended consequences.

Is there a problem with how capacity is allocated?

7.19. There are features of the way in which capacity is managed that appear, in principle, likely to work against efficient use of this scarce resource. For example:

(a) most passenger services are specified in franchises, and so are not flexible to respond to market changes;

(b) freight operators also have historic rights. It is through administrative mechanisms (notably part J of the Network Code) rather than pricing mechanisms that these rights are relinquished;

(c) Network Rail faces significant financial penalty for performance failures, which may not adequately be balanced by incentives to increase fare or freight customer revenue through improved timetabling.

7.20. There are also issues relating to use of capacity by open access passenger operators that we discuss in our on-rail competition consultation.

7.21. The efficiency of current capacity utilisation was examined in the RVfM study. The study compared GB network utilisation to other European countries. Taking certain differences into account, the report identified a number of specific features of current service patterns that may lead to inefficient use of the network, for example short or poorly-loaded trains taking up capacity on congested parts of the network. It stated "if the industry can change its mindset regarding the utilisation of existing system capacity in the coming years and, in particular, focus on improving average loadings of existing, more lightly loaded services, there is an opportunity (with projected passenger growth and a slowly reducing cost base) to significantly improve unit costs in the industry"[81].

7.22. This is a complex area. For example, lightly loaded services may be justified in parts of the network with surplus capacity, provided that their benefits exceed their costs. In recognition that more work is needed to investigate the extent of inefficient use of capacity and tackle it appropriately, the Rail Delivery

[81] Chapter 17, page 261.

Group, as one of its initial priorities, is "identifying ways to improve the utilisation of the train fleet by reviewing demand management, service specification and operating practices"[82].

7.23. Although there may be some sections of network and times of day in which capacity is not well used, it is not yet clear whether poor allocation of infrastructure capacity is a widespread or substantial problem. As set out above, however, there are a number of features in the way in which capacity is allocated and managed that are likely to act against the efficient use of this scarce resource.

Would a market mechanism be a better way of allocating capacity?

7.24. Market mechanisms have the potential to be more effective alternatives to administrative mechanisms because the decisions are made by the commercial companies who can respond dynamically to developments in their markets, and have the information and commercial imperative to do so. Whether adopting a more market-based approach to the allocation of capacity on the rail network would be sensible will depend on a number of factors, including the practicability of such an approach and whether an approach could be designed to take account of relevant trade-offs with wider policy goals.

7.25. Some administrative mechanisms are a legal requirement, but in any case it is likely that administrative mechanisms would need to continue to play an important role even if a market mechanism was used. Key reasons for this include the strong likelihood that different potential users (e.g. freight and passenger services, or services with different stopping patterns) will require different types of train paths, the very substantial complications involved in trying to forecast a market clearing set of prices, and the very high risk that pricing errors might lead to capacity on some of the most valuable parts of the network remaining unused.

7.26. In its report, NERA argued that rather than use incentives as a primarily means of allocating capacity, a more realistic objective was to adjust incentives to promote some improvement in capacity utilisation. This may be through providing incentives for train operators (and funders) to economise on their use of capacity, or for Network Rail to identify ways of providing additional train paths. Or it may provide an initial "filter" to eliminate some (but not all) competing applications for available train paths. This could lead to reduced administration costs, and also reduce the risk that administrative decisions will lead to train paths being allocated to services that use capacity inefficiently.

Do mechanisms for allocating capacity require updating to complement other reforms?

7.27. Some features of industry reform could significantly affect capacity allocation. In particular:

(a) if new franchises have less prescriptive train service specification, some elements of decision making regarding use of capacity will be transferred from the franchise authority to franchise passenger operators;

(b) PTEs currently have a role in specifying certain services which could be expanded, and extended to other local or regional authorities.

7.28. The DfT has announced its intention to move to longer, more flexible franchises than at present. Until recently, franchise contracts have tended to contain tightly defined specifications of services to be provided by franchisees. This reduces the scope for train operating companies to respond to market signals, such as charges, by proposing alternative ways of delivering services that might free up additional capacity[83].

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[82] RDG, established following a recommendation of the RVfM study, "brings together the owners of Britain's passenger and freight train operating companies and Network Rail to provide leadership to Britain's rail industry", http://www.raildeliverygroup.org.

[83] These could include, for example, longer but less-frequent trains.

7.29. However, it is not yet clear how much flexibility franchised operators will have in practice. The draft invitation to tender for the West Coast Mainline franchise gives a possible indication of the principles for franchising of intercity routes. On other routes, where services are less profitable, the approach may differ.

7.30. A further consideration is the localism agenda. If public transport executives (PTEs) and local authorities are given a greater role in specifying services, it is important that they face given appropriate price signals regarding the net industry costs of their decisions. They will balance these against the benefits to their local area and their other funding priorities. In specifying changes to services, they will need to take account of changes to costs and revenues including track access charges. Hence track access charges can be a means of signalling the cost and value (potentially to alternative users) of infrastructure, scarce or otherwise.

On the basis of the above, is there a case for reforming capacity utilisation incentives?

7.31. Despite the comments in the RVfM study, it is not clear whether there are widespread problems of poor capacity utilisation that are amenable to improvement through the incentive framework.

7.32. As discussed above, however, there are certain features in which the way capacity is allocated that are likely to work against efficient use of this scarce resource. Moreover, potential industry reforms strengthen the case for us to revise the package of incentives that influence the way in which capacity allocation is used[84].

Market mechanisms to incentivise capacity allocation

7.33. In competitive markets, prices are a key signal providing information that informs the behaviour of market participants. In competitive markets, prices reflect the cost of producing the good or service in question and buyers will decide to buy the good or service only if it is worth more to them than the price they will pay, i.e. more than it cost to produce. In this way, competitive markets allocate resources efficiently, i.e. to those users who value them most. In this section we discuss the options to use price signals to incentivise capacity utilisation that are listed in Table 7.3.

Table 7.3: Options for incentivising capacity utilisation

Option	Comment
Volume incentive	Existing incentive
Capacity charge	Existing incentive
Revenue sharing	Discussed in May consultation
Reservation charge	Considered in PR08. Consulted on in May 2011
Scarcity charge	Consulted on scarcity charge in May 2011

[84] We anticipate that schedule 9 of the franchise would apply to adjust for the net financial effects of the introduction of a capacity utilisation incentive. We do not consider that it would undermine the capacity utilisation incentives, however, because it is a one-off adjustment based on pre-agreed service patterns. Detailed franchise service specification would, however, reduce the effectiveness of incentives.

7.34. In Box 7.4, we also note an option, recommended in the RVfM study and raised in our May consultation, to monitor one or more indicators of capacity utilisation. This would not be a financial incentive, but could incentivise Network Rail and train operators through its impact on reputation.

Volume incentive

7.35. In PR08 we retained the volume incentive, which is the incentive for Network Rail to accept extra traffic onto the network over and above that anticipated in the periodic review determination.

7.36. The rationale for the volume incentive is that the structure of charges means that Network Rail faces weak financial incentives to meet additional demand. This is because the running of an additional train results in additional revenues for Network Rail equal to the relevant variable charge. This variable charge is designed to cover the efficient cost of the additional wear and tear to the infrastructure imposed by the additional train. To the extent that the actual wear and tear cost incurred by Network Rail is above the efficient cost, Network Rail may actually be financially disincentivised to accommodate additional demand.

7.37. The volume incentive provides Network Rail with additional revenues dependent on its ability to accommodate increases in passenger and freight volume metrics, subject to delivering HLOS capacity outputs. The payments come from funders rather than via train operators, so the mechanism does not affect train operators' incentives.

7.38. We consider it important that Network Rail has an incentive to accommodate additional capacity. Given the trade-off between capacity utilisation and performance (greater use of capacity, all things being equal, increases reactive delays), it is important that this is balanced appropriately against the regulatory mechanisms and incentives Network Rail has in respect of service disruption. We recognise that the incentive could be addressed by alternative means including a mark up on track access charges and through Network Rail sharing operators' revenue. Both these options are discussed below.

7.39. For these reasons, we are currently minded to continue with the volume incentive for the next control period. But we will need to revisit the relevance of the mechanism during PR13 if other incentives with similar policy aims, such as mark ups on variable charges, are taken forward.

7.40. In any case, we will review the detailed functioning of the volume incentive, including the metrics and the payment rates, in advance of concluding on its continuation. In our May consultation, we also discussed the potential for the mechanism to have a down side as well as upside, and we will consider this further as part of our review.

7.41. We consider that disaggregating the volume incentive by Network Rail route (which Network Rail suggested in its response to the May consultation) would increase its effectiveness: given changes to Network Rail to devolve responsibilities to routes, and accounting separation by route, a volume incentive acting at route level rather than nationally should be more effective.

7.42. We seek views on the scope of our proposed review of the volume incentive, including whether disaggregation by Network Rail route and consideration of a down side as well as an upside.

Box 7.4: Using transparency to improve capacity utilisation

Transparency may have a role in improving infrastructure capacity utilisation. For example, we could monitor and publish one or more indicator of capacity utilisation across the country, updated with each biannual timetable change. Stakeholders would then be better equipped to compare and challenge or act to resolve unexplained differences in the levels of utilisation for different parts of the network. This may provide important impetus to timetable recasts, or challenges to the status quo.

Levels of capacity utilisation can vary significantly by location and by time of day, so the indicators would need to be highly disaggregated to be meaningful. Hence clear presentation of the data and a well-designed user interface would be critical to the effectiveness of this measure.

Low levels of capacity utilisation are only an issue if there is passenger or freight customer demand for additional services. It may be necessary to provide this information also so that the indicators can be interpreted.

A first step is therefore to establish the potential benefits of such an indicator, in particular the extent of under-utilised capacity, probably through a case study. If we find that there may be significant parts of the network where capacity is underutilised, we will consider this potential workstream further, separate to PR13.

We welcome views on our proposed approach.

Capacity charge

7.43. The capacity charge is a variable charge that reflects costs directly incurred by Network Rail in the form of performance payments. In 2010-11, it accounted for £158 million of Network Rail's revenue; more than that of the variable usage charge.

7.44. It recovers Schedule 8 (performance regime) costs of additional traffic on the network. These costs arise because as the network becomes more crowded it becomes more difficult for Network Rail to recover from incidents of lateness. These costs vary across the network and by time of day.

7.45. It has characteristics similar to that of a congestion charge because it is calculated to reflect the incremental revenue losses to other services resulting from reactive delay associated with a more congested network. In its current form, however, the level of aggregation is such that the charge does little to differentiate effectively between changes in congestion across the day and between individual services. In particular:

(a) a single rate applies for groups of passenger services (often differentiating between "peak" and "off-peak" services) for weekdays;

(b) a single rate applies for all freight services for weekdays;[85]

(c) weekend rates are 25% less than those for weekdays.

[85] The capacity price list can be found at: http://www.networkrail.co.uk/browse%20documents/regulatory%20documents/access%20charges%20reviews/cp4%20charges/d%20-%20list%20of%20capacity%20charge%20rates%20for%20cp4.pdf

7.46. This approach has the advantage that it makes the charging framework administratively easier for train operators, particularly freight operators who need to calculate the costs of changes to their services quickly so they can be responsive to customers' requests for prices. A more disaggregate form of the charge was considered in PR08 but was abandoned, in part in response to concerns that there were anomalies relating to the charge calculation[86].

7.47. The aggregate level of the capacity charge means that it will sometimes be higher than the associated direct costs it reflects, and hence potentially some services that are willing to pay their costs directly incurred might be priced off the network[87]. In addition, as the capacity charge is fixed for the control period, it does not reflect changes to performance associated with service reconfiguration, and bespoke arrangements may be appropriate in such instances[88].

7.48. We continue to support the rationale for the capacity charge, and will support Network Rail in its work to revisit and recalibrate the charge for PR13, including addressing issues regarding anomalies that were raised in PR08.

7.49. We welcome' views, additional to those set out in response to our May consultation, on our approach to the capacity charge.

Revenue sharing

7.50. Another option we considered in our May consultation was to expose Network Rail to changes in train operators' revenues. Like the volume incentive, this would help to incentivise Network Rail to support the growth of industry revenue and could also reduce train operators' exposure to fluctuations in revenue. A potential drawback is that it may dampen operators' incentives to maximise revenue. And its effects duplicate the much more targeted arrangements under Schedules 4 and 8, where Network Rail bears the revenue impact of its own service disruption.

7.51. Consultees were generally unsupportive of the proposal and expressed a number of concerns. As well as the points mentioned above, it was argued that the share would need to be substantial in order for it to incentivise Network Rail. Consultees questioned the extent to which Network Rail could influence operators' revenue (other than through service disruption dealt with in Schedules 4 and 8). Concern was also expressed that revenue sharing would result in Network Rail favouring some services above others.

7.52. We do think it is important to incentivise Network Rail to be responsive to its customers, the train operators, and to passengers and freight customers. We recognise, however, that this option could have detrimental impacts on operators' finances and incentives (for example, in terms of their responsiveness to passengers and freight customers). Revenue sharing is a policy that we would need to develop working with relevant franchising authorities. We are open to developing this policy further with a franchising authority if asked to do so. We do not, however, intend to consider the policy further as part of PR13.

Reservation charge

7.53. A reservation charge is a charge that is imposed where a path is reserved but not used. It is therefore mainly of relevance to freight services. Where there are alternative potential uses for paths, the holding of unused paths has an opportunity cost equal to the profitability of the service foregone.

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[86] Final determination discussion of capacity charge starts at paragraph 19.94.

[87] Centro has drawn this issue to our attention in its response to the May consultation and previously.

[88] We discuss this issue in our chapter on access charges.

7.54. We consulted on this charge in May consultation, and we subsequently had a number of bilateral discussions on the reservation charge with freight operators and Network Rail. In responses to May consultation and in these subsequent discussions, stakeholders have argued that:

(a) under-utilisation of paths tends to be on parts of network where capacity is not constrained, and hence where the opportunity cost is zero. For example, the origins and destinations of coal traffic changes from day to day, and so additional paths (part of what are referred to as "Y paths") are required, but these are off mainlines. We were told that there is very little incidence of underused paths on capacity constrained bits of network, the primarily example being the East Coast Mainline north of Doncaster;

(b) a reservation charge would encourage more widespread use of train operator variations (formerly known as spot bids) to obtain short term rights. This would have repercussions for performance, because Network Rail would have less scope to validate the performance implications of the path;

(c) there would be very considerable administrative costs associated with determining which paths were booked and not used (because the levying the charge would require communication between the timetabling system and separate system that records actual use of the network that feeds into the track access charges billing system, TABS), including considerable dispute costs.

7.55. While we note stakeholders' views that unused paths are not a significant problem, we intend to investigate this further, and are commissioning research in this area. We also note concerns regarding performance and billing, which we accept could be burdensome.

7.56. As part of the recast of the first rail package, there are proposals for a reservation charge to be compulsory for congested infrastructure. If this proposal is confirmed, and it should be clear whether this is the case by mid-2012, then we would need to determine a reservation charge for the infrastructure that is affected as part of PR13.[89]

7.57. Under current contractual arrangements, including Part J of Network Code, we consider that the introduction of the reservation charge is likely to be an expensive response to what appears to be (subject to further research) a fairly limited problem. Therefore, subject to the research regarding the extent of path utilisation, and subject to legislation relating to infrastructure declared as being congested, we are not minded to implement a reservation charge as part of PR13.

7.58. We note that we do not consider this to exclude the policy of a reservation charge in future. For example market developments, changes to contractual arrangements, and changes to billing arrangements (such as through any implementation of a scarcity charge based on access rights rather than paths used) could all strengthen the case for a reservation charge.

Scarcity charge

7.59. In our May consultation, we considered a charge levied to incentivise better use of capacity. We consulted on a scarcity charge, which would reflect the opportunity cost of the capacity not being available for other purposes.

7.60. Subsequent to publishing the consultation, we commissioned consultants NERA to consider charges to incentivise efficient use of capacity. As part of this work, we held a small workshop for industry stakeholders where NERA presented illustrative options for "capacity utilisation" charges.

7.61. Issues identified in consultation responses and the workshop included the following:

[89] Network Rail has declared three areas of congested infrastructure. It lists these in section 4.4.3 of its 2013 Network Statement, http://www.networkrail.co.uk/aspx/3645.aspx

(a) A charge that varied by location and time of day would add to the difficulty freight operators face in quoting prices to customers, and hence in competing with road operators.

(b) That it is still not clear how much freedom franchised operators will have to make significant changes to service patterns in new franchises, and therefore the potential impact of an incentive relating to capacity utilisation.

(c) The view that capacity is already well utilised, particularly in areas where demand is high.

(d) Concern that the charge would not take account of the wider societal benefits of services.

7.62. In addition, ATOC and some passenger operators argued strongly for higher variable charges, primarily on the grounds that, provided that train operators had some choice regarding the services that they run, it would be a means of sharing train operator risk with Network Rail, thereby increasing the value of the franchise.

7.63. In its response to our May consultation, Network Rail, in addition to expressing reservations regarding the merits of a scarcity charge, highlighted the difficulties associated with billing such a charge. It noted that a potential way of levying such a charge would be as a mark-up on the capacity charge to reflect network scarcity[90].

7.64. As we discussed above, there are in principle reasons why the current system for allocating capacity may result in sub-optimal outcomes in some instances. And this issue increases in importance if industry reforms mean that franchised operators and local authorities have greater freedom to determine service patterns. On this basis, we intend to investigate further the case for a track access charge that incentivises efficient use of capacity. We note the following:

(a) That a charge set above market clearing prices might result in capacity being under used. This would be detrimental to efficiency thereby defeating the purpose of such an incentive. At the same time there is considerable uncertainty associated with forecasting demand response to charges. Hence we would need to determine a charge that has been set conservatively, i.e below the opportunity cost of the infrastructure, to manage this risk. In practice it may be appropriate for the charge be set to zero for large parts of the national network for much of the day or week;

(b) Stakeholders have highlighted important practical difficulties that would need to be overcome for such an incentive to be implemented effectively. We would need to study and resolve satisfactorily such difficulties prior to any implementation;

(c) prior to any implementation of such a charge, we would conduct an impact assessment and assess whether relevant markets can bear the charges under any specific proposal we put forward. The assessment would take account of the full range of impacts including impacts for different train operators in different markets, and the benefits of the policy in terms of capacity utilisation. We would take account of the interaction between this policy and other policies, such as higher charges for certain freight commodities (as reflected in the CP4 freight only line charge).

[90] Under the current structure of the capacity charge, this would mean a charge for each passenger operator service code (which in many cases distinguishes between peak and off peak services), a uniform charge for all freight services, and a discount for weekend services.

Box 7.5: Billing on the basis of the timetable

Variable charges are billed on basis of actual traffic rather than timetabled traffic. This is consistent with legislation which requires charges to reflect costs directly incurred, such as infrastructure wear and tear costs.

A reservation charge is a charge for capacity that is requested but not used. For it to be billed, Network Rail would need to reconcile two systems, relating to timetable and actual use.

A charge to reflect infrastructure scarcity (that is the opportunity cost of other services not being able to use the infrastructure) should ideally be billed on the basis of timetabled paths rather than used paths, on the basis that, irrespective of whether the operator uses its access rights, other services are prevented from using the infrastructure.

For passenger services, billing variable charges (excluding electricity charges) on the basis of timetabled services may be a welcome simplification. It might be easier to bill in aggregate for repeated use. The few exceptions, where services are not run according to the timetable, could then be dealt with separately, potentially through compensation under the performance and possessions regimes (Schedules 4 and 8).

7.65. We propose that the track access charge reflect the opportunity cost of the infrastructure (which may well vary by time of day, but operators would be treated consistently across all markets). In setting such a charge, it would be important to balance the benefits of simplicity against those of cost reflectiveness in order to maximise the charge's benefits. In considering the level of geographic complexity, we need to take account of how the option would be billed and priced for freight customers, so that rail freight operators are not unduly disadvantaged relative to road hauliers. At the same time, we need to avoid simplicity resulting in over charging.

7.66. This proposal has overlaps with proposals set out in our on-rail competition consultation. In the latter we consult on open access operators paying the value of paths, as determined by auction. We see the two regimes potentially interacting as follows:

(a) Open access operators, and indeed all passenger and freight operators, would be required to pay the charge to incentivise capacity utilisation; but

(b) as per our on-rail competition consultation, open access passenger operators may be required to participate in an auction for incremental capacity, and pay a fixed track access charge that would reflect the auction value.

(c) Irrespective of developments in our policy relating to on rail competition, the mark-up would be compatible with our not primarily abstractive test in that the revenue associated with this charge would be deducted from the calculation of revenue abstracted.

7.67. We will conclude on this consultation in our forthcoming regulatory framework document in 2012. Prior to that, we will conducted further research into the extent of inefficiencies in infrastructure capacity utilisation and seek to establish whether that evidence combined with industry reforms provide sufficient basis for incentivise to help allocate capacity. We will draw on such emerging evidence and consultation

responses to decide whether to progress our proposal to introduce a track access charge to incentivise better use of capacity.

Box 7.6: How would an additional variable charge affect the flow of funds?

We determine the fixed track access charge for each franchised operator. All fixed charges combined total Network Rail's net revenue requirement, taking account of its costs, including financing costs, and other income. If we were to introduce an additional variable charge as part of PR13, taking the form of a mark-up on costs directly incurred, the net revenue requirement would be less and hence the fixed charges would be less.

Under the franchise adjustment mechanism ("Schedule 9"), if traffic levels were as assumed in our determination, the net financial impact for operators and funders would be zero. The incentives associated with changes in services, both for funders and operators, would be quite different as a result of the new charge, however. And a higher variable charge would expose Network Rail to some degree of additional risk; a necessary consequence of making its finances more dependent on the demand from its customers.

7.68. We welcome views, additional to those already expressed in responses to our May consultation, on policy proposals relating to levying a charge to incentivise better use of capacity

Questions

7.69. The questions raised in this chapter are summarised in the box below.

Chapter 7: Questions for stakeholders

Q7.1: What are your views, additional to those set out in your response to our May consultation, on our treatment of the following options:

(a) The scope of our proposed review of the volume incentive, including disaggregation by Network Rail route and consideration of a down side as well as an upside?

(b) That we continue to support the rationale for the capacity charge, and will support Network Rail in its work to revisit and recalibrate the charge for PR13?

(c) That we should establish the extent to which infrastructure capacity is under-utilised before proceeding to develop one or more indicator by which to monitor capacity utilisation?

Q7.2: What are your views, additional to those already expressed in your response to our May consultation, on the policy we are considering further to levy a charge to incentivise better use of capacity?

8. Network Rail's cost of capital and financing arrangements

Key messages from this chapter

- Network Rail's cost of capital should reflect all of the risks it is exposed to as a business.
- The fact that Network Rail is currently entirely financed by debt, and that currently that debt is entirely underwritten by government, means that the company's actual cost of finance is substantially lower than its cost of capital reflecting the business risks it faces.
- This raises the question of how we should treat the surplus cash. For example, it could be re-invested in the network, rebated to DfT and Transport Scotland or used to pay down debt.
- Which option we choose matters. Our choice of option will affect the flow of funds in the industry. It will also affect the balance between the recovery of costs from current customers and funders and cost recovery from future customer and funders. It could also make it easier or harder in the longer term for Network Rail's financing structure to change, for example through the issuance of unsupported debt or ultimately equity. Such changes in the financing structure, and potentially the governance of the company, would affect the way in which it responds to our incentives, potentially improving the effectiveness of economic regulation.
- We recognise that pressure on public finances may result in a desire among funders for us to keep the revenue requirement in CP5 as low as possible. To the extent that options that achieve this increase Network Rail's debt, we will need to consider the long-term sustainability of its financial arrangements. We will also need to consider the balance between the interests of current and future customers and funders of the railway.

Introduction

8.1. This chapter sets out our views on the approach to the financial framework issue that is most closely linked to general incentive issues, i.e. our approach to Network Rail's cost of capital.

8.2. In consulting on our approach to Network Rail's cost of capital and in particular our policy on unsupported debt we have taken into account the impact on our existing policy of a different economic climate, current and prospective industry reforms and the different challenges facing Network Rail. All these issues have made it appropriate for us to reconsider our approach.

8.3. We face numerous policy choices, and combinations of choices, when deciding on the financial framework we will use in PR13. The aim of this consultation is to determine the most transparent way of showing how customers and taxpayers pay for the risks involved in Network Rail's activities.

8.4. We are also specifically consulting on alternatives to the policy we adopted in PR08, which aimed to regulate Network Rail in a way that would facilitate its issuing unsupported debt. Whether we continue with this approach or not has a material effect on the revenue requirement in CP5. If we were to shift away from this approach at PR13 we could reduce the revenue requirement in CP5, although this would be at the expense of a higher revenue requirement in later control periods.

8.5. Consulting now gives us more time to consider our policy. It also allows us to link the incentive properties of our financial framework, including their impact on Network Rail's financial structure, with our wider thinking on incentives. We will consult on other aspects of our PR13 financial framework (such as the use of the risk buffer)[91] in our forthcoming document setting out the regulatory framework for PR13.

Background

8.6. Network Rail's ultimate parent company is a company limited by guarantee (CLG) and has members instead of shareholders. As a CLG, Network Rail's ultimate parent company is a private organisation operating a commercial business owned by its members. Although members are appointed largely to perform the role of shareholders in general meetings (e.g. appoint Board members, approve/reject major transactions and remuneration arrangements), there are crucial differences. In particular, members do not have any capital at risk, as shareholders who provide equity for a business would have. The 'owners' of Network Rail do not therefore take the risks or realise the rewards of Network Rail's activities and they do not necessarily have common goals and objectives.

8.7. Network Rail is solely financed by debt, therefore all of the profits left after interest has been paid on the debt are retained within Network Rail rather than being distributed to members or, if it had shareholders, as dividends.[92] As members do not have any equity capital at risk they are not directly incentivised to seek to drive the company to improve its financial performance.

8.8. In addition, Network Rail currently benefits from the financial indemnity mechanism (FIM)[93] provided by the Secretary of State for Transport for the company's debt (which currently stands at around £25 billion). So, although Network Rail raises debt like a 'normal' company, the debt is government guaranteed.[94] This guarantee enhances Network Rail's credit, allowing Network Rail to raise debt at gilt rates (i.e. UK government interest rates) plus a relatively small margin. Network Rail pays a fee to government for the credit enhancement it gains from the FIM.

8.9. Both Network Rail's CLG status and its use of the FIM have a significant impact on the way in which Network Rail responds to the incentives we put in place. Specifically, they materially weaken the transmission mechanism for Network Rail's corporate financial incentives. In particular:

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91 A risk buffer represents an amount of funding included in the allowed return that may enable Network Rail to manage risk efficiently, i.e. the allowed return would be higher than Network Rail's efficient financing costs.

92 Although in the past Network Rail has used its profits to pay a rebate to DfT and Transport Scotland, invest in the network and pay down debt.

93 The FIM is a full faith and credit guarantee.

94 The amount of debt that can be raised under the FIM is currently capped at 108% of RAB, which is well above Network Rail's current level of gearing (63.4% at 31 March 2011). The value of the RAB was around £39 billion at 31 March 2011, so the FIM cap was around £42 billion at 31 March 2011.

(a) in the event of a financial failure at Network Rail, creditors are guaranteed to receive both their interest and principal back. This means that the incentive for debt holders and other investors to perform their traditional monitoring role of identifying issues that could affect the downside risk (which would reduce the probability of them being repaid their interest and principal) is materially weakened; and

(b) the fact that the FIM is effectively uncapped at present means that Network Rail does not face a hard budget constraint as any overspend can be financed by further borrowing under the FIM.[95]

Our PR08 policy

8.10. At PR08 we expected the introduction of unsupported debt to reduce the overall cost of Network Rail activities and therefore offer value for money as arguably a conventionally financed company will have better incentives that will ensure that it operates more efficiently, have better financial discipline and it should also benefit from being able to retain and attract high quality management. Even if we only assumed a modest rise in the level of efficiency that we thought Network Rail could achieve, as a result of the improved operational performance resulting from the introduction of unsupported debt, those savings were expected to be greater than the additional costs of unsupported debt.[96]

8.11. In PR08 we commissioned NERA to undertake a study to estimate the extent to which we could expect Network Rail to achieve greater efficiency gains as a result of the envisaged changes to the financial framework. The analysis suggested that there is a link between a regulated company's financial structure and the speed at which it achieves improvements in cost efficiency. In particular, they suggested that the existence of a significant tranche of unsupported debt should increase the rate at which efficiencies are achieved by around 0.5% per annum for a least the duration of one control period.[97]

8.12. Our PR08 determination assumed that Network Rail would start to raise unsupported debt during CP4 to improve its corporate financial incentives and that the use of the FIM would be restricted (we assumed in PR08 that approximately 40% of the £10 billion of additional debt to be raised in CP4 would be on an unsupported basis). This would introduce a hard budget constraint on Network Rail as limiting the amount of debt that could be raised under the FIM would mean that any overspend would have to be funded on a normal commercial basis.

8.13. Unsupported debt would also increase external scrutiny of Network Rail's performance, as unsupported debt holders and other investors (for instance, investors in secondary markets) would want to assure themselves that Network Rail could deliver its plans and not put at risk its interest and principal repayments, i.e. debt holders and other investors would perform their traditional monitoring role of identifying issues that could affect the downside.[98]

8.14. The other advantage of an unsupported debt approach is that it would further support a disciplined approach to the relationship between DfT and Transport Scotland and Network Rail. This is important as clearly separating political issues from the operation of the network should enhance accountability. This is

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95 Although as Network Rail has not issued unsupported debt, as part of PR08 we restricted Network Rail's level of indebtedness through its network licence.

96 If there was risk transfer from the DfT and Transport Scotland to financial markets then the value for money of unsupported debt would be clearer, i.e. Network Rail's financing costs would be higher but the financial markets and not the DfT and Transport Scotland would be liable for the costs of a failure. So, any increased efficiency would provide an overall benefit.

97 NERA's report is available at: http://www.rail-reg.gov.uk/upload/pdf/pr08-isbp-nera.pdf.

98 Network Rail would need to access the credit markets on a regular basis, and for significant amounts of debt. In order to do this efficiently, our expectation is that it will need to maintain a solid investment grade credit rating. A downgrade or a move to a negative outlook could seriously hamper the company's ability to raise debt efficiently.

especially important at the moment as the rail industry as a whole is loss making and as a result Network Rail is subsidised by the DfT and Transport Scotland.

8.15. In summary, the key aspects of our approach to Network Rail's cost of capital in PR08 as part of the overall price control package reflecting the required outputs, incentives and efficiencies and other aspects of the package were:

(a) Network Rail's allowed return reflects its risk adjusted cost of capital (its allowed return for 2011-12 was around £2 billion in 2011-12 prices);

(b) the FIM would be restricted;

(c) Network Rail would pay for the FIM at the level of the long-run credit enhancement that Network Rail benefits from;

(d) the allowed return would be higher than Network Rail's forecast financing costs (since it is based on a 'conventional' weighted average cost of capital (WACC) calculation, with standard gearing assumptions and hence a cost of debt and cost of equity component). The first part of the 'surplus' return would be treated as an in-year risk buffer (of c£250 million per annum in 2011-12 prices) to allow Network Rail to manage cost and revenue shocks and fluctuations. The remainder of the surplus (a quasi-dividend) is treated as a 'ring-fenced fund' that would fund part of the capital expenditure needed to deliver the high-level output specifications (HLOSs); and

(e) Network Rail would raise unsupported debt using the gradualist approach.[99]

8.16. However, due to conditions in the financial markets at the start of CP4 and rating agency concerns at the start of CP4 about the deliverability of the PR08 determination, Network Rail has not yet tried to raise unsupported debt.

Issues

8.17. In this section we outline our overall approach to regulating Network Rail, the different options that we could take to our approach to Network Rail's cost of capital and the criteria for assessing those options. We then assess those options and provide some indicative financial modelling.

Our overall approach to regulating Network Rail

8.18. Our approach to Network Rail's cost of capital cannot be considered in isolation from the rest of the financial framework[100] and in particular how we want to regulate Network Rail overall. The two main broad approaches to the regulation of Network Rail that we could take are:

(a) treat Network Rail simply as being part of a group that has a CLG as the ultimate parent company and that has debt guaranteed by government. We could then structure our regulatory approach around this, including taking it into account in the design and implementation of our incentives framework (e.g. on the basis that the company is more likely to be motivated by minimising downside risk rather than maximising upside risk and be more responsive to reputational than financial incentives); or

(b) recognise that Network Rail's corporate financial incentives are not ideal (due to its financial structure and its use of the FIM) so it does not respond to incentives in the normal way, e.g. it is not as motivated

[99] The gradualist approach is a phased introduction of unsupported debt. In PR08 the phasing was 15% in year 1 rising to 80% in year 5, with a minimum amount of £500m. So, in year 1 we assumed £500m would be raised as that was higher than 15%.

[100] For example, as Network Rail has not issued unsupported debt Network Rail's current network licence restricts Network Rail's level of indebtedness.

to increase its profits. Therefore, we could regulate Network Rail in a way that seeks to improve those incentives but we could also take account of the reality of its current financial structure in PR13.

8.19. At PR08 we effectively took the approach set out in (b). Generally we regulate Network Rail as if it were a conventionally financed company but where necessary we take account of its specific characteristics, e.g. through the use of the ring-fenced fund. In considering the financial framework for our periodic review of Network Rail's access charges we need to consider the way in which risk is allocated in the industry. Our key principle is that risk should be allocated to whoever is best placed to manage it. In respect of those companies we regulate, we provide incentives for them to manage risk in the most effective way. Overall, this should ensure that the cost of managing risk, as reflected in the cost of capital, is as low as possible. This overriding principle is important regardless of Network Rail's financial structure.

8.20. As part of the on-going debate about industry reform a number of initiatives to improve incentives in the rail industry have been considered. These initiatives include Network Rail devolution, concessions and cost and revenue sharing. As part of this work, we have discussed with the DfT, Transport Scotland and the industry the role that risk capital (both debt and equity) could play in improving Network Rail's incentives and performance and how Network Rail could be structured and financed.

8.21. The key issues that we consider in this section are:

(a) should Network Rail's allowed return reflect its cost of capital that reflects all of the risks it is exposed to (i.e. what should be the basis of Network Rail's cost of capital);[101]

(b) given Network Rail's current financial structure and governance, if we do provide Network Rail with a cost of capital that reflects all of the risks it is exposed to how should the surplus cash be treated, e.g. should it be re-invested in the network, rebated to DfT and Transport Scotland or used to pay down debt; and

(c) how should Network Rail be financed, e.g. should it raise unsupported debt.

8.22. The way Network Rail is financed is unconventional and can obscure the true cost of Network Rail's activities. This is because all organisations face risks, e.g. that it overspends on a project. Network Rail is no different. Conventionally, these risks are classified as either debt or equity risks, i.e. the provider of debt finance, is exposed to debt risks and the provider of equity finance is exposed to equity risks.

Basis of Network Rail's cost of capital

8.23. In PR08 the allowed return that we provided Network Rail with compensated them for the risks they were exposed to. However, due to the way Network Rail is funded the taxpayer, through DfT and Transport Scotland, ultimately take the debt and equity risk of Network Rail's activities.

8.24. Therefore, to be transparent it is important to show the true cost of Network Rail's activities in its revenue requirement which would include the cost of the equity risk in relation to Network Rail's activities. However, if we do include these costs in the calculation of the revenue requirement then we need to take account of Network Rail's corporate status and funding by recycling the surplus on the cost of capital back to the DfT and Transport Scotland.

Use of the surplus

8.25. Recycling the surplus cash from the cost of capital can be done in the following ways:

[101] Network Rail's revenue requirement includes its allowed return, which is calculated by multiplying Network Rail's asset base represented by the value of its RAB by its cost of capital.

(a) Network Rail could pay DfT and Transport Scotland a distribution of surplus cash (i.e. a 'dividend') in the same way that a company partly funded by equity would pay a dividend to its shareholders;

(b) Network Rail could pay its customers (e.g. the TOCs) a rebate that gets recycled back to the DfT and Transport Scotland. This is similar to paying them a dividend directly; or

(c) the surplus cash can be re-invested in the network by Network Rail (e.g. through the use of the ring-fenced fund) or used to pay down debt (e.g. in PR08 we assumed the risk buffer would be used for this purpose). This was the approach we took in PR08 as explained below.

Financing Network Rail

8.26. There are three broad approaches to Network Rail's financial structure that could in principle be used:

(a) it could be conventionally financed with an appropriate balance of debt and equity. This is the model used by the vast majority of network utilities in Great Britain;

(b) maintain the current structure, i.e. a company 100% funded by debt guaranteed by government; or

(c) Network Rail could be brought closer to government either through nationalisation, i.e. where Network Rail could be treated in the same way that for example the highways agency is or where Network Rail is just debt financed either directly from the Treasury or under the FIM.

8.27. The advantages of financing Network Rail's debt in a more conventional way are discussed above. In addition if Network Rail is partly financed by equity, equity holders would push Network Rail to outperform.

8.28. The main disadvantage of financing Network Rail in a more conventional way is that Network Rail's financing costs will be higher as a result of Network Rail borrowing without the credit enhancement that the FIM provides. If Network Rail issues equity then the dividend payments needed to service the equity will also be an additional cost to the industry.[102] This would be less of an issue if there was risk transfer from the DfT and Transport Scotland to debt and equity holders as that is crucial to the success of a conventionally financed Network Rail. However, we would need to take account of recent government interventions in for example the banking industry when considering whether there would be risk transfer.

8.29. One of the disadvantages of the conventional financing approach is that there is the potential for arbitraging between the WACC and the marginal cost of debt, i.e. the WACC includes an equity element and is an average of the average cost of debt and the average cost of debt, whereas companies raise new finance at the marginal cost of debt and equity. One of the ways of dealing with this issue is by adopting a split cost of capital approach as proposed by Professor Dieter Helm.[103] However, in order for a split cost of capital approach to be effective Network Rail's activities would have to be clearly distinguished according to their risk profile and each of those activities could have different costs of capital. Understanding the risks of a business at this level of granularity is not easy to do and may not be practicable. Also, if we could identify the risks of the business at this level of detail then we could also produce a weighted average cost of capital for Network Rail as a whole that reflected those risks. We will review whether the split cost of capital approach is suitable for Network Rail in April 2012.

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102 Although the proceeds from the sale of the equity would offset this cost.

103 Professor Helm advocates an approach that would see regulators no longer set a single WACC across a regulated utility but instead two separate costs of capital. One of which could apply to the riskier elements of the business, for example construction of new assets, reflecting substantial equity finance. The other of which could apply to the low risk elements of the business, such as operating existing assets. Professor Helm suggests that a RAB-based approach could provide the basis for cost recovery in the low risk portion of the business, and that the higher risk part of the business could sell assets on completion into the RAB at the efficient cost of construction. This view is set out for example in: http://www.competition-commission.org.uk/our_role/cc_lectures/cc_spring_lecture09_helm.pdf. In rail, Professor Helm has suggested that this approach could allow the RAB to be held in a form of public trust, reflecting its national importance, while allowing the transfer of equity-type risk (e.g. as associated with construction) to the private sector.

Options

8.30. Since PR08 there have been a number of changes that have prompted us to reconsider our approach to the cost of capital and in particular the approach we might take to Network Rail's financial structure. These changes include:

(a) a worse economic climate. This could affect the affordability of the approach that we took to Network Rail's cost of capital in PR08. In particular, this is an issue given that our duties require us to consider the effect of our determination on government. One of the consequences of the current approach to Network Rail's financial structure (which assumed unsupported debt) is that the revenue requirement is higher in the short term when compared for example to the cost of debt approach (subject to financeability). However, a different approach (e.g. based on cost of debt) would have little effect on overall cost, but would shift the burden of cost recovery into the future by raising the RAB and debt to a level higher than it would otherwise be;[104]

(b) current and prospective industry reforms. As mentioned previously there are a number of initiatives being discussed at the moment, e.g. Network Rail devolution, concessions and cost and revenue sharing. The main issue that these initiatives raise for our approach to Network Rail's cost of capital is whether it is best for these changes to take place first before considering introducing risk capital (either debt or equity) into Network Rail; and

(c) different challenges facing Network Rail. Network Rail has to deliver the requirements of the HLOSs efficiently. In the industry's IIPs Network Rail has identified some changes that it could make to the way that it runs its business such as the operating strategy that would fundamentally change the way it operates the network.

8.31. We have identified and considered the main broad options, which we set out below and we have also modelled the financial implications of the different options. We have assessed the advantages and disadvantages of these options with respect to a number of criteria:

(a) the effect on incentives (in their own right and through the effectiveness of the transmission mechanism) now and in the longer term;

(b) the effect on transparency;

(c) the effect on the flexibility to change Network Rail's financing structure;

(d) the effect on long-term financial sustainability; and

(e) the effect on affordability.

8.32. The main broad options that we are considering for PR13 are:

(a) assume that Network Rail raises unsupported debt in CP5; and

(b) assume that the introduction of unsupported debt does not happen in CP5.

Assume that Network Rail raises unsupported debt in CP5

8.33. The first option is that we could assume that Network Rail raises unsupported debt in CP5. In this option, for the moment, we would try to keep most of the detailed aspects of the way we calculate Network Rail's allowed return the same as in the PR08 gradualist approach, e.g. we are still assuming that the ring-

[104] This is primarily because the ring-fenced fund is used to pay for capital expenditure on a pay-as-you-go basis instead of it being added to the RAB and being paid for over time. The ring-fenced fund in CP4 is around £3 billion in total in 2011-12 prices.

fenced fund or a rebate will be calculated using cash interest costs, i.e. not including inflation accretion on index-linked debt.[105] This has two main variants:

(a) use the existing PR08 gradualist approach with the ring-fenced fund recycling the surplus cash from the cost of capital[106] to pay for capital expenditure and assume that the in-year risk buffer is not needed (as we expect Network Rail to deliver the determination efficiently) and is used to pay down debt. In the financial modelling below this approach is called the gradualist approach (Approach B);[107] and

(b) use the existing PR08 gradualist approach but with a rebate replacing the ring-fenced fund and an assumption that the risk-buffer is not used and is also rebated back to the DfT and Transport Scotland.[108] Making these adjustments to the unsupported debt approach would make it more comparable to the cost of debt approach discussed below. In the financial modelling below, this approach is called the rebate approach (Approach C).

8.34. Using a rebate to mimic the effects of a dividend instead of recycling the 'surplus cash' through the ring-fenced fund would mean the unsupported debt approach would not generate a materially higher funding requirement in CP5 than a cost of debt approach as the surplus cash produced by the allowed return calculation would be returned to the DfT and Transport Scotland subject to financeability. These issues are illustrated in Table 8.2 below.

8.35. There are a number of issues with using a rebate to transfer the surplus cash in Network Rail back to the DfT and Transport Scotland. For instance, what the process would be for declaring the value of a rebate, what the administrative arrangements would be for paying a rebate, how would the DfT and Transport Scotland account for the rebate and would budgetary uncertainty be an issue for DfT and Transport Scotland as they may not know how much the rebate would be in each year.[109]

8.36. We have asked the DfT and Transport Scotland to set out their views on how a rebate mechanism would work. In particular, we have asked them how they would account for the rebate and whether budgetary uncertainty would be an issue for them.

8.37. We will discuss with the credit rating agencies in the near future how they would treat a rebate as this could affect our approach to financeability.[110] In particular, how would they treat a rebate in the calculation of Network Rail's financial indicators, e.g. the adjusted interest cover ratio (AICR).

Assume that the introduction of unsupported debt does not happen in CP5

8.38. The second option is that we assume that the introduction of unsupported debt does not happen in CP5 and use a cost of debt approach for PR13. We would not need to assume that Network Rail would never issue unsupported debt, merely that none was issued in CP5. This approach would include Network Rail paying the FIM fee and we would allow a return on capital that reflected only the efficient cost of debt.

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105 Inflation accretion on index-linked debt is the inflation element of the total return provided to the investor. For example, if a £100 index-linked bond has a coupon of 2% and inflation is 3% then the investors cash return is £2 (£100 x 2% = £2) and £3 is added to the outstanding debt and reimbursed when the bond matures (£100 x 3% = £3).

106 The surplus is generated by the allowed return being higher than Network Rail's financing costs.

107 Another option would be to simplify this approach by fixing an amount of capital expenditure to be funded on a pay as you go basis in a similar but less mechanistic way to the ring-fenced fund method.

108 We have assumed that the risk buffer is also included in the rebate as it would be inconsistent to use it to pay down debt, unless in other approaches we only assumed a proportion of the surplus cash was returned to the DfT and Transport Scotland.

109 We envisage that the existing rebate mechanism that is in access charges contracts could be used for this purpose although it may need to be modified.

110 We had similar discussions with the credit rating agencies in PR08 about the treatment of the ring-fenced fund.

In the financial modelling of these options we have assumed that we would not allow an in-year risk buffer to be more comparable with the other approaches modelled in this document.[111]

8.39. This approach could affect the incentives on Network Rail as discussed elsewhere in this document, e.g. it may make Network Rail more risk averse although this may not be a material effect given the way we regulate Network Rail. Taking this approach would be consistent with the view that Network Rail responds better to targets than other incentives and does not need an in-year risk buffer to be innovative, especially when it also has a balance sheet buffer.[112] This approach also has a number of variants:

(a) we could focus on funding Network Rail's efficient financing costs. This approach is called the cost of debt approach (Approach D). To aid comparability in the financial modelling below we have assumed that we would not provide Network Rail with a risk buffer; and

(b) we could target the balance sheet buffer. In the financial modelling below, this approach is called the balance sheet buffer approach (Approach E).

8.40. Also, given in this option we are taking a different approach to PR08, we could consider changing the way we fund accretion on index-linked debt in PR13. In the balance sheet buffer approach inflation accretion is included in the calculation of the financing costs that should be funded as in that approach a gearing ratio based on a level of debt that includes inflation accretion is used as the target.

Our criteria for deciding on our approach to Network Rail's cost of capital

8.41. The five key criteria that we need to consider when deciding on our approach to Network Rail's cost of capital are:

(a) the effect on incentives (in their own right and through the effectiveness of the transmission mechanism) now and in the longer term;

(b) the effect on transparency;

(c) the effect on the flexibility to change Network Rail's financing structure;

(d) the effect on long-term financial sustainability; and

(e) the effect on affordability.

8.42. We will decide on our approach to Network Rail's cost of capital and in particular the unsupported debt policy by having regard to all our duties including:

(a) having regard to the funds available to the Secretary of State;

(b) promoting efficiency and economy;

(c) securing value for money; and

(d) enabling persons providing railway services to plan the future of their business with a reasonable degree of assurance.

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111 The risk buffer has been questioned by some respondents to our first consultation. We will consult on our approach to the risk buffer in our forthcoming document setting out the regulatory framework for PR13.

112 Network Rail's forecast balance sheet buffer at March 2012 is around £4 billion. The balance sheet buffer is the difference, at a point in time, between Network Rail's actual or forecast level of debt expressed as a percentage of its actual or forecast Regulatory Asset Base and the level of debt allowed in its licence.

Impact on incentives

8.43. As we discuss above, both the CLG status of Network Rail's ultimate parent company and Network Rail's use of the FIM have a significant impact on the way in which Network Rail responds to the incentives we put in place. Specifically, they materially weaken the transmission mechanism for Network Rail's corporate financial incentives. Therefore, when we decide on our approach to Network Rail's cost of capital, we will also consider whether the approach we take will improve Network Rail's incentives now and in the longer term.

Transparency

8.44. As we discuss above it is important that our approach to Network Rail's cost of capital is transparent and identifies the true cost of Network Rail's activities including the appropriate compensation for the risks we have assumed it takes.

Flexibility to change Network Rail's financing structure

8.45. In considering the effect of our policies on Network Rail, the DfT and Transport Scotland's finances in CP5 we need to consider the effect in CP5 and also over the longer-term, i.e. does the approach we use affect the sustainability of Network Rail's finances over the long-term. Inevitably looking beyond the next control period is inherently uncertain. However, the financial modelling we discuss later in the paper provides an indication of the effect of the policy options over CP5 – CP7.

8.46. Keeping the unsupported debt approach would clearly be most consistent with maintaining flexibility to change Network Rail's financing structure. However, if we did change our approach in PR13 and used a cost of debt approach. Then as long as any changes to our approach to Network Rail's cost of capital were well presented and explained in the context of the long-term vision for the industry, it should not provide too big a hurdle to issuing risk capital (both debt and equity) in the future. We will discuss these issues with the credit rating agencies and the financial markets to gauge how they would react to the changes.

Financial sustainability

8.47. Considering the long-term financial sustainability of our approach when deciding our approach to Network Rail's cost of capital is a key issue. Financial sustainability can mean a number of things, some of which are interconnected (e.g. the level of the revenue requirement is partly dependent on the level of debt). In particular, it includes the following key issues:

(a) is the level of debt appropriate for a company such as Network Rail; and

(b) can the debt be re-financed when appropriate and serviced efficiently.

8.48. In any company the level of debt is important and especially how it relates to its asset base. A company's asset base can be measured in many ways. For a regulated price controlled entity such as Network Rail, its Regulatory Asset Base (RAB)[113] is also relevant as the value of its RAB reflects the regulators valuation of the company for regulatory purposes including setting the revenue requirement.[114] Therefore, the debt/RAB ratio or its regulatory gearing ratio is also particularly relevant.[115] We already consider whether the level of debt is appropriate for a company such as Network Rail when we:

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[113] Most economic regulators use a RAB as part of their price control methodology. In essence, the RAB provides the function of a store of value that allows a regulated utility to be compensated for its expenditure over time rather than in the year the capital expenditure is made. This compares to a pay-as-you-go methodology where customers and funders pay for the capital expenditure when it is incurred.

[114] The replacement cost of Network Rail's assets is also relevant. The unimpaired depreciated replacement cost of Network Rail's network (after excluding the replacement costs of embankments, cuttings and tunnels) is estimated at £75 billion at 31 March 2011. Considering the replacement cost of Network Rail's assets is particularly useful given the unusual way Network Rail's RAB has been rolled forward, i.e. Network Rail's RAB includes non-capex additions.

[115] Other financial indicators such as interest cover ratios are also relevant.

(a) determine our assumptions for the cost of capital calculation;

(b) limit the amount Network Rail can borrow in its network licence, which is based on a gearing ratio; and

(c) assess Network Rail's financeability, as the gearing ratio is a key financial indicator that we use in our financeability assessment.

8.49. Given Network Rail's corporate status and the way in which it is funded, when considering financial sustainability issues there is also the issue of the absolute level of Network Rail's debt. The absolute level of Network Rail's debt should be considered as more than just an issue of financial sustainability. This is because funders, consumers and other stakeholders may not be comfortable with certain levels of debt for other reasons. For example, they may have concerns about the inter-generational effects of high levels of debt and the associated interest payments.

8.50. We consider whether Network Rail's debt can be re-financed when appropriate and serviced efficiently when we determine our cost of capital and interest cost assumptions in an access charges review.[116] Given that Network Rail's debt is typically relatively long-dated we consider these issues over the long-term.

Affordability

8.51. Given that one of our duties is to have regard to the funds available to the Secretary of State one of the criteria that we use to asses our approach to Network Rail's cost of capital is whether the net revenue requirement is affordable over time by funders.

8.52. The affordability of the revenue requirement depends upon the financial position of the funders. The key funders are DfT and Transport Scotland and they will provide us with their formal views in July on affordability for CP5 in their statements of funds available (SoFAs). We cannot require the SoFAs to look further ahead than the length of the control period but we will ask DfT and Transport Scotland for a view on long-term affordability as they will be considering affordability over a longer period of time than five years when developing the SoFAs.

8.53. It is useful to consider the affordability issues for DfT and Transport Scotland in the round, so to put Network Rail's financial position into context the total subsidy from DfT and Transport Scotland in CP5 is £13 billion.

8.54. Some stakeholders have previously raised concerns about the levels of Network Rail's debt. But funders generally want to find ways of funding capital expenditure that results in increasing debt (for example by adding cost into the RAB so that it is recovered over a longer period). Ultimately if Network Rail's funders want debt to be lower, they will need to increase their funding to reduce the debt (everything else being equal). This highlights the tension between improving the sustainability of Network Rail's financial position while ensuring the affordability of the revenue requirement to funders now. The increased pressure on public finances as compared to PR08 is likely to result in stronger calls from funders to ensure affordability in CP5. But we must ensure the overall sustainability of Network Rail's finances over the long term.

Financial modelling

8.55. There are a considerable number of ways of looking at the options identified above. As described below, approaches B-C assume that Network Rail issues unsupported debt and approaches D-E assume that Network Rail does not issue unsupported debt.

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116 We take account of the FIM when we make this assessment.

8.56. We have provided some focus to the analysis by only analysing some of the approaches in this paper in order to produce an indicative range. We stress that our analysis is purely intended to illustrate the effects of some of the key differences in approach. The approaches that we have analysed are:

(a) Approach A - IIP. This is the approach taken by Network Rail in the current network plus investments to reduce costs version of the IIPs, i.e. in this analysis we use Network Rail's assumptions. Network Rail's assumptions include our PR08 assumptions on cost of capital and the mechanics of the unsupported debt approach. However, they do not include the issuance of unsupported debt, which means that the interest costs are not consistent with the revenue.

(b) Approach B - gradualist. This approach also uses Network Rail's base plan (i.e. current network plus investments to reduce costs version of the IIPs) and Network Rail's assumptions but assumes a gradual increase in Network Rail's use of unsupported debt through CP5, i.e. it applies the PR08 gradualist approach.[117] In order to be more consistent with the rebate, cost of debt, and balance sheet buffer approaches we assume that the FIM fee is equal to the difference between Network Rail's supported and unsupported interest cost assumptions. This difference is 200 basis points, which is higher than our long-run PR08 assumption of 80 basis points that Network Rail has used.[118] The gradualist approach in PR08 assumes that the risk buffer is not drawn down (i.e. Network Rail's delivers the determination without overspending, so the surplus is then used to pay down debt), so we have made the same assumption in this approach. Also, to aid comparability across the approaches we have not assumed that the issue of unsupported debt will increase Network Rail's efficiency.

(c) Approach C – rebate. The rebate approach assumes that the gradualist approach is used but any surplus achieved by Network Rail is paid back to government through a rebate, instead of being used to fund pay-as-you-go capital expenditure. In this approach, we have assumed the risk buffer is also included in the rebate as it would be inconsistent to use it to pay down debt, unless in the rebate and cost of debt approaches we only assumed a proportion of the surplus cash was returned to the DfT and Transport Scotland.

(d) Approach D - cost of debt. The cost of debt approach funds Network Rail's forecast efficient interest costs (including the FIM fee), i.e. the allowed return is equal to Network Rail's efficient interest costs (including the FIM fee). We have assumed there is no risk buffer to provide more comparability with the rebate approach. Under this approach there is no ring-fenced fund and only supported debt is issued in CP5.

(e) Approach E - balance sheet buffer. Under the balance sheet buffer approach, we use Network Rail's balance sheet as the constraint and target a gearing ratio of 70.0%. If we had targeted a gearing ratio of 72.5% net funding would be £19.4 billion (in 2011-12 prices) and if we had targeted a gearing ratio of 75.0% net funding would be £17.1 billion (in 2011-12 prices).

8.57. In PR08 the ring-fenced fund was calculated using cash interest costs. Another option would be to calculate interest costs on an accrued basis. In practice the major difference between the two approaches was the treatment of the inflation accretion on index-linked debt.[119] To aid comparability across the approaches we have assumed that we do fund cash interest costs and not inflation accretion. However, in the balance sheet buffer approach inflation accretion is included in the calculation of the financing costs

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117 Originally in PR08 we assumed that Network Rail would raise all additional debt on an unsupported basis from the start of CP4. Given the movements in financial markets this approach was changed to the gradualist approach over the course of PR08 and reflected in our final determination.

118 We are doing some work on the level of the FIM fee recognising that in the current conditions in the financial markets the forecast will be uncertain. We have also asked Network Rail to estimate the FIM fee as in the IIP it just used the PR08 assumption.

119 In the IIP approach the value of inflation accretion is approximately £2.5 billion over CP5.

that should be funded. This is because in that approach, a gearing ratio based on a level of debt that includes inflation accretion is used as the target.

8.58. Table 8.1 below shows the key assumptions in each of the approaches that we have considered. The approaches we have chosen to illustrate the issues contain a number of different assumptions. Therefore moving from one approach to another does not just involve changing one assumption. Annex D provides further details of the financial effects of the different approaches that we have modelled and shows some of the differences caused by the individual policy changes, e.g. issuing unsupported debt.

Table 8.1: Assumptions for five potential funding approaches for CP5

	A. IIP	B. Gradualist	C. Rebate	D. Cost of debt	E. Balance sheet buffer
Unsupported debt issued	×	✓	✓	×	×
Risk buffer	✓	✓	×	×	×
WACC based return (ring-fenced fund)	✓	✓	×	×	×
Target gearing	×	×	×	×	✓
Rebate to govt	×	×	✓	×	×
Inflation accretion funding	×	×	×	×	✓
FIM fee	0.8%	2.0%	2.0%	2.0%	2.0%

8.59. Table 8.2 illustrates the net funding (i.e. the net revenue requirement, less FIM fee, less any rebate to government) required in CP5 and other relevant numbers such as debt, based on our high-level indicative financial modelling. The financial modelling we have provided here is at a Great Britain level but the financial implications of the different options will be similar in England & Wales and Scotland.

Table 8.2: Financial implications for CP5

Approach	CP4	IIP	Gradualist	Rebate	Cost of debt	Balance sheet buffer
Analysis of net funding £m (2011-12 prices)						
Net revenue requirement	28,235	31,223	33,927	35,337	28,555	25,164
Less: FIM fee	986	1,273	3,079	3,286	3,401	3,572
Less: Rebate	-	-	-	6,755	-	-
Net funding	**27,248**	**29,950**	**30,848**	**25,296**	**25,154**	**21,592**
Analysis of allowed return £m (nominal prices)						
Allowed return	**10,128**	**13,914**	**17,028**	**18,670**	**10,847**	**6,936**
Finance costs						
Interest costs	5,000	6,467	6,409	7,094	6,925	7,283
FIM fee	984	1,466	3,545	3,786	3,923	4,125
Accretion	1,426	2,520	2,437	2,603	2,697	2,836
Total finance costs (inc.	**7,410**	**10,453**	**12,391**	**13,484**	**13,544**	**14,245**

accretion)						
Total finance costs (exc. accretion)	5,984	7,933	9,954	10,880	10,847	11,409
Use of surplus						
Risk buffer	1,227	1,417	1,417	-	-	-
Ring-fenced fund / rebate to government	2,916	4,564	5,657	7,790	-	-
Other financial information £m (nominal prices)						
Closing RAB	50,329	63,983	62,831	68,789	68,747	68,789
Closing debt	31,538	38,938	37,882	45,282	45,074	49,686
AICR (CP5 average)	1.69	1.75	1.70	1.70	1.00	0.61
Debt / RAB (CP5 average)	63.0%	63.3%	63.0%	66.2%	66.1%	70.0%

Notes:
1. In this table the CP4 column is our determination of Network Rail's funding uplifted into 2011-12 prices. It is not the approach we used in CP4 applied to CP5 numbers.

2. Network Rail's plan that supported the industry's IIPs does not include £2.1 billion of traction electricity costs as those costs are recharged to train operators' and the IIPs are an industry plan, so the IIPs showed traction electricity costs as train operator costs. This means the revenue requirement in this table is £2.1 billion higher than assumed in the IIPs.

8.60. Table 8.3 below explains the variances between the two approaches modelled in Table 8.2 that have the most differences between them (i.e. the gradualist approach and the cost of debt approach) in order to highlight and explain the key issues. In simple terms the main difference between the two approaches is that in the gradualist approach we fund the full cost of capital, with the surplus above interest costs recycled to pay for capital expenditure on a pay-as-you-go basis.[120] By contrast the cost of debt approach only funds efficient financing costs.

Table 8.3: Explanation of the variance between the gradualist approach and the cost of debt approach

£m	Gradualist	Cost of debt	Variance	Explanation of difference
Analysis of net funding (2011-12 prices)				
Net revenue requirement	33,927	28,555	5,373	The allowed return under a cost of debt approach only funds financing costs. Under a gradualist approach the allowed return needs to be sufficiently high to allow unsupported debt to be issued efficiently.
Less: FIM fee	3,079	3,401	- 321	The cost of debt approach has a higher level of supported debt as no unsupported debt is issued. Therefore, the FIM fee, which is payable on supported debt is higher.
Less: Rebate	-	-	-	Neither approach includes a rebate to government.
Net funding	**30,848**	**25,154**	**5,694**	See above.
Analysis of allowed return (nominal prices)				
Allowed return	**17,028**	**10,847**	**6,181**	See above.
Financing costs				

120 This means in the year the expenditure is incurred.

£m	Gradualist	Cost of debt	Variance	Explanation of difference
Interest costs	6,409	6,925	- 515	The level of debt is higher under the cost of debt approach and hence financing costs are also higher.
FIM fee	3,545	3,923	- 378	
Accretion	2,437	2,697	- 260	
Total finance costs (inc. accretion)	**12,391**	**13,544**	**- 1,153**	
Total finance costs (exc. accretion)	9,954	10,847	- 893	
Use of surplus				
Risk buffer	1,417	-	1,417	There is no risk buffer or ring-fenced fund under a cost of debt approach
Ring-fenced fund / rebate to government	5,657	-	5,657	
Other financial information (nominal prices)				
Closing RAB	62,831	68,747	- 5,916	In the cost of debt approach, there is no surplus that can be used to fund capex, so the RAB is higher (£6 billion). Also there is no risk buffer (£1.4 billion), so debt is higher (£7.2 billion).
Closing debt	37,882	45,074	- 7,192	
AICR (CP5 average)	1.70	1.00	0.70	In the cost of debt approach, the cost of capital only funds financing costs, so the AICR is by default 1.0. In the gradualist approach Network Rail needs to maintain a higher AICR to issue unsupported debt efficiently.
Debt / RAB (CP5 average)	63.0%	66.1%	- 3%	As explained above both the debt and the RAB are higher under the cost of debt approach.

8.61. We have also considered the longer term impact of the different approaches by extending our financial modelling into CP6 and CP7. The figure below illustrates the net funding required for CP5, CP6 and CP7 for each approach to funding Network Rail's activities. It should be noted that for the 'rebate', 'cost of debt' and 'balance sheet buffer' approaches, the analysis assumes that these approaches are followed in CP5 but that we revert back to a gradualist approach in CP6 and CP7 as this better illustrates the financial sustainability issues.

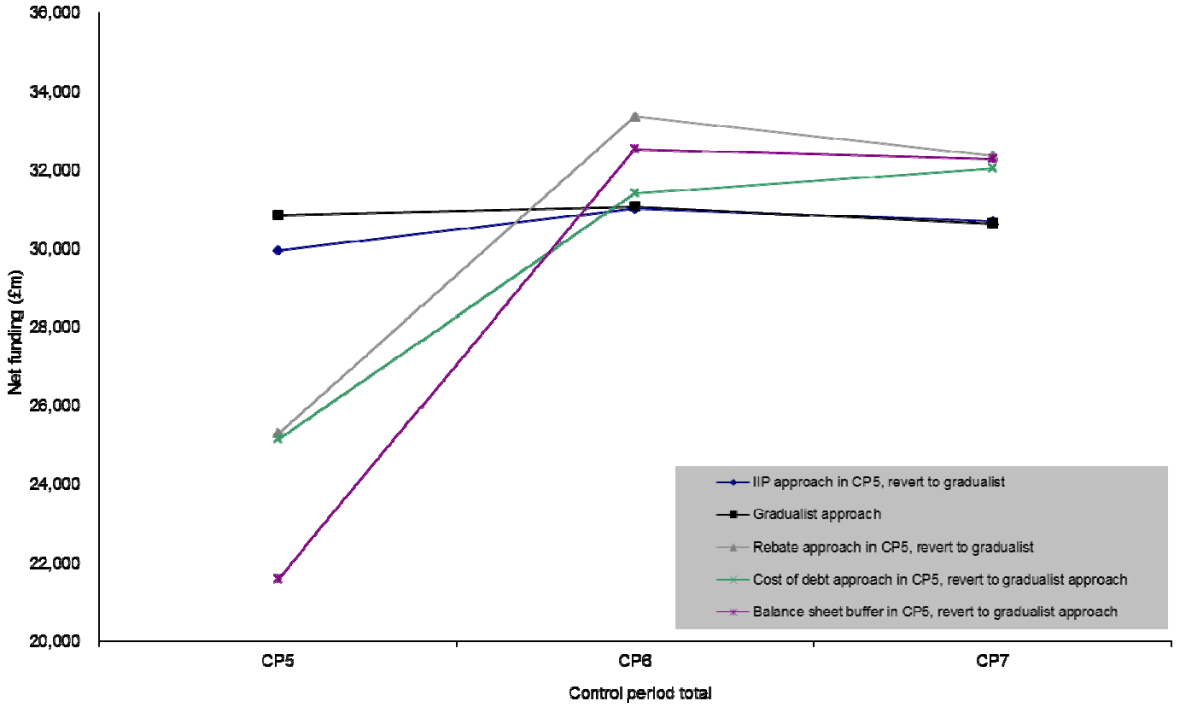
8.62. In modelling CP6 and CP7 we have just used Network Rail's assumptions from the IIPs. These include average renewals spend of £2 billion per year and indicative enhancements of £1 billion per year. Network Rail's efficiency assumptions are:

(a) support and operations – 8% in CP6 and 3% in CP7;

(b) maintenance - 1% in CP6 and 0% in CP7; and

(c) renewals - 0% in CP6 and 0% in CP7 (but Network Rail assumed 10% efficiency from CP6 – CP11 in its calculation of the long-run steady state renewals for amortisation).

Figure 8.4: Net funding for CP5 – CP7 under each approach



Analysis of the options

8.63. We have assessed the options for our approach to Network Rail's cost of capital by using the criteria identified above.

Approach B - gradualist

8.64. Assuming that Network Rail issues unsupported using the gradualist approach that we used in PR08 and retaining the ring-fenced fund should:

(a) improve the incentives on Network Rail;

(b) clearly show the true financial cost of Network Rail's activities;

(c) be consistent with maintaining the flexibility to change Network Rail's financing structure;

(d) aid long-term financial sustainability as debt is lower than in the other approaches; but

(e) requires higher net funding in CP5 than the other approaches, so would be less affordable for the DfT and Transport Scotland.

Approach C – rebate

8.65. Assuming that Network Rail issues unsupported debt using the gradualist approach that we used in PR08, but with the rebate replacing the ring-fenced fund is similar to the gradualist approach. The main difference between the gradualist approach and the rebate approach is that Network Rail's long-term financially sustainable is worse but affordability is better for DfT and Transport Scotland. Therefore, the rebate approach should:

(a) improve the incentives on Network Rail;

(b) clearly show the true financial cost of Network Rail's activities;

(c) be consistent with maintaining the flexibility to change Network Rail's financing structure;

(d) worsen long-term financial sustainability as debt would be higher than in the gradualist approach; and

(e) requires lower net funding in CP5 than the gradualist approach, so would be more affordable for the DfT and Transport Scotland than the gradualist approach.

Approach D – cost of debt

8.66. In this approach we assume that the introduction of unsupported debt does not happen in CP5 and Network Rail's allowed return would be equal to the level of Network Rail's efficient financing costs. We may also allow Network Rail a risk buffer in addition to the efficient level of financing costs. However, we have not assumed that there is a risk buffer in the financial modelling to aid comparability with the other approaches. This approach:

(a) is less likely to improve the incentives on Network Rail when compared to the gradualist or rebate approaches;

(b) would not show clearly the true financial cost of Network Rail's activities;

(c) would be less consistent with maintaining the flexibility to change Network Rail's financing structure than the gradualist or rebate approaches. Although as long as the changes to our approach to Network Rail's cost of capital were well presented and explained in the context of the long-term vision for the industry, it should not provide too big a hurdle to issuing risk capital (both debt and equity) in the future;

(d) would worsen long-term financial sustainability compared to the gradualist approach as debt would be higher than in the gradualist approach but have a similar impact on long-term financial sustainability as the rebate approach; and

(e) requires lower net funding in CP5 than the gradualist approach, so would be more affordable for the DfT and Transport Scotland than the gradualist approach and have a similar level of net funding as the rebate approach.

Approach E – balance sheet buffer

8.67. In this approach we assume that the introduction of unsupported debt does not happen in CP5 and Network Rail's allowed return would be equal to the amount needed to ensure that the target level of gearing was achieved. This is similar to the cost of debt approach but as it is a more radical approach it would have worse long-term sustainability implications but would be more affordable for the DfT and Transport Scotland. This approach:

(a) is less likely to improve the incentives on Network Rail when compared to the gradualist or rebate approaches;

(b) would not show clearly the true financial cost of Network Rail's activities;

(c) would be less consistent with maintaining the flexibility to change Network Rail's financing structure than the gradualist or rebate approaches.[121] Although as long as the changes to our approach to Network Rail's cost of capital were well presented and explained in the context of the long term vision for the industry, it should not provide too big a hurdle to issuing risk capital (both debt and equity) in the future;

(d) would worsen long-term financial sustainability compared to all the other approaches as debt would be higher; and

(e) requires lower net funding in CP5 than all the other approaches, so would be more affordable for the DfT and Transport Scotland than all the other approaches.

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[121] It would also probably be less consistent than the cost of debt approach in maintaining the flexibility to change Network Rail's financing structure.

Summary

8.68. The advantage of maintaining the unsupported debt approach is that it would improve incentives, be more transparent and be more consistent with keeping options for changing Network Rail's financing structure open. However, if we continue to use the ring-fenced fund the net funding requirement in CP5 would be around £6 billion (in 2011-12 prices) higher than under the cost of debt approach. Although debt would be around £7 billion (in nominal prices) lower at the end of CP5, so Network Rail's financial sustainability would be better.

8.69. However, if a rebate is used to mimic the effects of a dividend instead of recycling the 'surplus cash' through the ring-fenced fund, then subject to financeability the net funding requirement using an unsupported debt approach (£25.3 billion, in 2011-12 prices) would be similar to a cost of debt approach (£25.2 billion, in 2011-12 prices) and debt using an unsupported debt approach (£45.3 billion, in nominal prices) would be similar to a cost of debt approach (£45.1 billion, in nominal prices).

8.70. The net funding requirement in CP5 would be around £6 billion (in 2011-12 prices) lower as a result of not using our PR08 approach to unsupported debt and instead using either the rebate or cost of debt approaches shown. This comprises the saving from the ring-fenced fund (around £6 billion, in 2011-12 prices) and not having an in-year risk buffer (around £1 billion, in 2011-12 prices), offset by a higher allowed return (around £1 billion, in 2011-12 prices).

8.71. However, if we did use either of the rebate or cost of debt approaches shown above debt would be around £7 billion (in 2011-12 prices) higher as around £6 billion (in 2011-12 prices) of capital projects that would have been funded by the ring-fenced fund would be funded by debt (and as a result the RAB would be around £6 billion (in 2011-12 prices)). Also, in the gradualist approach the in-year risk buffer (around £1 billion, in 2011-12 prices) is used to pay down debt.

8.72. The overall range of net funding that the different approaches produces is £22 billion to £31 billion (in 2011-12 prices). The low end of that range is where we use the balance sheet buffer approach (at a targeted level of gearing of 75.0% the low end of the range would be £17.1 billion (in 2011-12 prices)). Using the balance sheet buffer approach is moving quite a long way from the unsupported debt approach and can substantially reduce net funding. However, a level of funding in CP5 at the low end of the range may be financially sustainable if DfT and Transport are content that net funding increases from CP6 onwards.

8.73. The above numbers and figure 4.1 illustrate that the main effect of unsupported debt in the short term is a timing difference in the net funding requirement between CP5 and later control periods.

8.74. We have discussed these issues with Network Rail. It considers that it is important that the full costs of Network Rail's activities are identified in an access charges review and that the identification and funding of those costs needs to be carried out in a transparent manner, which will aid decisions about financial sustainability.

8.75. Network Rail therefore would like us to continue to identify the full cost of capital required to operate its network. Network Rail considers that a determination that reflects the full cost of capital would provide a transparent view of these costs, provide consistency in the financial framework and keep open future financing options, including the potential to issue unsupported debt, equity finance (including through concessions), allowing a RAB 'buy back', enabling other industry reforms such as alliancing, and project finance for some activities. While recognising that the cost of capital impacts the level of charges in CP5, Network Rail considers that it is important to note that it affects the timing of future funding rather than the overall level of future funding that will be required. It would therefore be open to considering different ways that the surplus could be used which would reduce the overall cost in CP5. For example, the surplus could be paid to government through a dividend stream or rebate mechanism rather than being invested through a ring-fenced fund.

8.76. In considering how it will finance its activities, Network Rail continues to be positive about the benefits of unsupported debt. Network Rail considers that it is important that the conclusions of PR13 keep open future options for the introduction of risk capital by taking into account the cost of debt on the basis of an unsupported debt approach.

8.77. In our view it is not necessarily the case that we need to maintain the policies that Network Rail has set out above in order to maintain the options that are important to Network Rail. This is particularly the case for issues such as concessions and project financing. However, for issues such as issuing unsupported debt and equity finance, if we did change our approach in PR13 any changes would need to be well presented and explained in the context of the long term vision for the industry.

Questions

8.78. To help our work in this area it would be useful if consultees could provide their views on the issues raised above and in particular the questions set out in the box below.

Chapter 8: Questions for stakeholders

Q8.1: Do you agree with the criteria that we have applied in assessing different options to Network Rail's cost of capital and our approach to its financial structure?

Q8.2 Do you agree that we should use a cost of capital for Network Rail that reflects the risks faced by the business, even though this may not reflect the company's actual financing costs?

Q8.3: How do you think we should deal with the surplus cash that results from such an approach?

Q8.4: What advantages and disadvantages do you see in our regulating Network Rail in a way that preserves the options for changes to the company's financial structure?

Q8.5: How should we strike the right balance between the interests of current customers and funders and future customers and funders?

9. The incentive properties of opex and capex cost recovery

Key messages from this chapter

- It is important that the incentives on Network Rail are fit for purpose, especially given its current financial structure and governance.
- The way in which we allow Network Rail to recover opex and capex through its charges in itself has incentive properties. For example, our approach to determining which costs should be included in the RAB, and how the RAB is recovered through charges could affect the company's choice between solutions that are relatively opex-intensive and solutions that are relatively capex-intensive. The question of whether regulatory incentives give rise to undesirable 'capex-bias' has been considered in other regulated sectors.
- We think that it is important that our regulatory framework should not distort incentives on Network Rail to make certain types of expenditure and not others.
- We think that further work is needed to understand the incentive effects of our current framework on Network Rail. In particular, we want to understand better how different classes of expenditure feed into the calculation of efficiency, and the incentive properties that this could have on Network Rail.
- We are consulting on how incentives affect Network Rail and how we can improve them.

Introduction

9.1. One of the issues we raised in our May consultation was whether incentives should be equal across different types of expenditure (and potentially income), as this is not currently the case. For example, if at any time Network Rail underspends on maintenance by a pound it keeps a pound[122] and if it overspends by a pound it pays out one pound more than it received (i.e. a 100% incentive strength). However, the incentive strengths for capital expenditure are largely 25%, which in PR08 is equivalent to five years financing costs at Network Rail's PR08 cost of capital (4.75%, real vanilla).[123] In PR08 capital expenditure includes renewals expenditure and enhancement expenditure, which are both added to the RAB, and renewals expenditure includes reactive and cyclical maintenance expenditure.

[122] To put this into context, if we assumed in a determination that Network Rail would spend £100 on maintenance and it spends £99 then it keeps £1. This could be used to pay down Network Rail's debt, invest in the rail network or be returned to the DfT and Transport Scotland as a rebate.

[123] This is the allowed return on Network Rail's RAB. A 'vanilla' return is based on a pre-tax cost of debt and post-tax cost of equity.

9.2. In particular, our May consultation said that we will need to consider whether there is any bias towards capital expenditure and to what extent this is a reflection of the effect of our incentive framework and other factors such as company culture or incentives on other stakeholders including the DfT and Transport Scotland. The RVfM study also raised this point and said that we should review capital expenditure incentives. It also suggested that we should specifically consider whether or not the use of the RAB ensures that Network Rail, train operators, DfT and Transport Scotland are appropriately incentivised to adopt the best capital or non-capital solutions.

9.3. The debate about the level of the incentive strengths (sometimes called the power of the incentive) is further complicated by the distinction between savings that are one-off savings and recurring savings.

9.4. The proportion of recurring savings retained by a company will depend on when during a control period the saving is made. For example, if a recurring saving is made in year one of a control period then the company will keep making this saving in the remaining years of the control period. While the company will continue to benefit from the efficiency improvement in future control periods, those benefits will be fully captured by funders/customers when we set future access charges and funding. The company will therefore only retain a proportion of the overall benefit that accrues from a recurring efficiency improvement.

9.5. The differences between the incentive strengths across different types of expenditure is mitigated to some extent as in general it is normally the case that savings in capital expenditure tend to be one-off whilst savings in support, operations and maintenance expenditure tend to be recurring and are therefore captured by funders and customers through the next periodic review. As illustrated in Table 9.1, the incentive rate for one-off capital expenditure can be similar to that for recurring support, operations and maintenance expenditure.

Table 9.1: Summary of financial incentives on expenditure and income for Network Rail

Category	% of out/under performance retained by Network Rail	
	One-off	Recurring
Controllable opex (support and operations)	100	6 – 28
British Transport Police and Railway Safety and Standards Board costs	100	6 – 28
Maintenance	100	6 – 28
Renewals	25	2 – 9
Enhancements	25	2 – 9
Other single till income	100	6 – 28

Notes:

1. Recurring or permanent savings/costs assumes savings continue for 30 years and uses a 4.75% discount rate, which is Network Rail's cost of capital in PR08. A 28% saving means that Network Rail will retain 28% of the total savings assuming that the savings would continue for 30 years (after allowing for discounting).

2. Certain enhancement projects have their own specific incentive rates.

3. The ranges reflect the timing of the saving/cost, e.g. the lower figure represents a saving first made in year 5 and the higher figure represents a saving first made in year 1.

PR08 incentive changes

9.6. In PR08 we altered the incentives Network Rail faces on renewals and enhancement expenditure by transferring some of the risk to customers and funders, so Network Rail is not exposed as much as it was in control period 3 (CP3) to an efficient overspend (in CP3 it was completely (i.e.100%) exposed to an overspend and would also retain all the benefit of an underspend). In PR08 the incentive strengths for capital expenditure are largely 25%.[124]

9.7. We also ensured that inefficient overspend would only be added to the RAB if Network Rail could show that it was appropriately justified, so that appropriate incentives on Network Rail to perform well were maintained.

9.8. One of the main reasons for these changes was that we thought this approach would be more appropriate if Network Rail were issuing unsupported debt as otherwise the premium that Network Rail may have had to pay if we had maintained the CP3 approach was likely to have been too high (i.e. the allowed return would be higher to compensate Network Rail for the higher level of risk that Network Rail would be taking).

[124] Our approach to incentives on renewals and enhancements in PR08 was implemented by increasing/reducing the value of Network Rail's RAB at the start of the next control period by the amount of capitalised over or under-spend, plus capitalised financing costs, less 25% of the over or under-spend. This means that Network Rail always bears a financial cost/benefit of 25% of the over or under-spend, which is equivalent to Network Rail bearing the capitalised financing costs associated from over or under-spending for five years. This is part of the RAB roll forward process.

9.9. In PR08, one of the other changes we made to Network Rail's incentives was to equalise the incentives on renewals and enhancements over time. This means that they are equal for each year of the control period, i.e. the benefit of an underspend in year 1 of the control period is the same as an underspend in year 5. Also, in PR08 Network Rail does not benefit and will not be penalised for a rescheduling of renewals and enhancements within a control period, and there is no incentive equalisation mechanism in place in PR08 for support, operations and maintenance expenditure or income.

Our May consultation

9.10. In our May consultation we said that we consider that it is appropriate to equalise the incentives on support, operations and maintenance expenditure with the incentives on renewals and enhancement expenditure. This means that the period of retention for support, operations and maintenance expenditure would be equalised, both to ensure that the incentive to make support, operations and maintenance expenditure savings is not weakened towards the end of the control period and to address any potential bias towards renewals and enhancement expenditure.

9.11. Few respondents commented on this suggestion. Network Rail did say that it believes that the current mechanisms are broadly effective.[125] We think that we need to carry out further work to determine the effect of our incentives on Network Rail, particularly as Network Rail is different to other regulated companies in that it is not as incentivised by maximising its profit. Instead, it is incentivised to achieve its efficiency targets and hence earn bonuses for its management. These efficiency targets include Network Rail's financial value added (FVA) metric which measures renewals and enhancement expenditure on an equal basis to support, operations and maintenance expenditure (e.g. one pound of maintenance efficiency is equal to one pound of renewals efficiency), which means that in the FVA measure the incentives on support, operations and maintenance expenditure savings are equal to the incentives on renewals and enhancement expenditure savings. However, the FVA measure does not take account of whether a saving is recurring. This is a potential weakness in the current definition of FVA used by Network Rail.[126]

Questions

9.12. We seek stakeholders' views in helping us to consider the issues set out in the below box. We expect to conclude on these issues in the financial issues update document that is expected to be published in October 2012.

125 Also, Grand Central said that incentives on capex and opex should be equal.

126 In recognition of this issue, in CP5 we will consider including enhancements in our definition of efficiency.

Chapter 9: Questions for stakeholders

Q9.1: How do the incentive properties of our different treatments of different classes of expenditure affect operating decisions on the ground, e.g. is it the potential financial gain or loss that motivates actions or is are decisions more based on other factors such as relative complexity, cultural factors (e.g. tradition or professionalism) or the nature of Network Rail's financing and governance arrangements?

Q9.2: Are the incentives on Network Rail affected by the different ways we may assess support, operations and maintenance costs, compared to renewals and enhancements expenditure? In particular, we may use a base year for support costs that is rolled forward by an efficiency assumption, whereas for renewals we will probably not roll forward a base year but will take a view on the likely level of expenditure in each year on a pre-efficient basis[127] and then apply an efficiency assumption.

Q9.3: Do you expect Network Rail's work on whole-life costs to change its decision-making, and in what way?

Q9.4: Is there any evidence of 'capex bias' at Network Rail?[128] To what extent is this undesirable?

Q9.5: Should we seek to equalise the incentives for different types of income and expenditure? How best might we do this?

[127] A pre-efficient basis means at the efficiency levels in 2013-14.

[128] Ofwat have recently looked at the issues of capex bias and concluded that it is not clear that the incentive framework (which includes reputational, process and financial incentives) in water and sewerage as a whole is systematically biased towards capex. The paper this is discussed in is available at: www.ofwat.gov.uk/future/monopolies/fpl/pap_tec1105capex.pdf.

10. Other incentives

Key messages from this chapter

- We recognise the importance of innovation if the rail industry is to deliver the value for money challenge as set out in the RVfM study.
- Many of the standard incentive tools we use in our periodic reviews create incentives for innovation, for example by challenging Network Rail to achieve efficiencies beyond those available using existing approaches, we encourage innovation. We will continue to incentivise innovation through these standard incentive tools. We expect this to be the main way in which we incentivise innovation.
- Given the barriers to innovation that have been identified in the rail industry, we ask whether additional more specific incentives are needed. We are not currently persuaded of the need for a specific innovation fund, but seek views on this. We also seek views on the use of innovation-related KPIs and innovation prizes.
- Rail is well placed to make a strong contribution to cutting the UK's carbon emissions and other positive environmental outcomes. We set out the options for how regulation can support this, including by encouraging greater energy efficiency through more on-train metering and better management of transmission losses, and supporting the industry's own proposals in the IIPs.

Introduction

10.1. This chapter discusses incentives relating to innovation and the environment.

10.2. In our May consultation, we asked if there were other new incentives that we should consider introducing. Whilst there were no major proposals for incentives covering areas that we had not already discussed in our document, a number of stakeholders commented on our proposed environmental incentives and the issue of innovation which we had raised.

10.3. We think both these areas are important enough to warrant further consideration in this document – both because of the issues identified by the RVfM study and because they link to the outcomes of greater value for money and an environmentally sustainable, lower carbon economy which are sought by customers, funders and society.

Innovation incentives

10.4. The RVfM study suggested that up to £190m of savings each year could potentially be derived from greater innovation in the rail industry[129]. PR13 provides an opportunity for us to consider what we can do to facilitate and encourage this, particularly in the context of industry reform.

10.5. In this section, we provide some background on innovation, including what it is and how it can be measured. We then discuss some of the barriers to innovation before considering some of the options that could be used to support innovation in the rail industry, concluding with our preferred approach on which we are seeking views.

Defining and assessing innovation

10.6. Innovation is the introduction of new methods, ideas or products to address established problems. In economic terms, innovation is not catching up with best practice; rather, it can be considered as a shift in best practice. In principle efficiency gains through innovation (dynamic efficiency) are distinguishable from efficiency gains that a realised by catching up with existing best practice (catch up efficiency). But in practice, efficiency targets expressed in terms of cost per output or outcome may be achieved through either means. Innovative approaches are not always associated with new technology, and can also include new ways of working.

10.7. Innovative approaches tend by their nature to have a higher level of risk and uncertainty attached to them compared to approaches that are already established practice. A firm will only undertake innovation where it expects to earn a return that reflects this risk. Where innovation would have benefits beyond the firm in question, and where these benefits are not reflected in the return the firm would expect to earn, levels of innovation may be too low.

10.8. Measuring innovation is not straightforward. Professor Martin Cave's Independent Review of Competition and Innovation in Water Markets in 2010[130] suggests that the best indicators of the level of innovation in a company or an industry are:

(a) the rate of productivity growth in an industry; and

(b) the level of spend on R&D, both within individual firms and across the industry.

Innovation in the rail industry

10.9. In respect of rail, the available evidence for both (a) and (b) above does not present a clear picture. On productivity growth, the RVfM study suggested that GB rail has performed below international benchmarks since privatisation. Rail industry R&D spend is approximately 0.3% of turnover[131], which broadly compares to other UK network utilities, but is more than five times lower than the average for UK firms. The average worldwide figure for regulated utilities is 1.7%, suggesting innovation in GB is out of step with international practice. The evidence of a trend in innovation is also unclear, with the RVfM study[132] suggesting that the level of innovation has increased in the last ten years (though still lagging behind performance in other railways and industries). By contrast, Oxera[133] has suggested that expenditure in R&D in the GB rail industry fell significantly between 1990 and 2005.

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129 RVfm summary document, page 33, http://www.rail-reg.gov.uk/server/show/ConWebDoc.10401

130 http://www.defra.gov.uk/publications/2011/12/06/cave-review/

131 Based on information in the RVfm study, Page 190, http://www.rail-reg.gov.uk/server/show/ConWebDoc.10401

132 Rail Value for Money study, Page 186, http://www.rail-reg.gov.uk/server/show/ConWebDoc.10401

133 Where has all the innovation gone? R&D in utility regulation, Oxera, 2005

10.10. It is important to recognise that there have been significant innovations in recent years in both the regulated and unregulated parts of the industry. For example, Network Rail has introduced new technology in track and signalling, while train operators have continued to innovate in the field of passenger information.

10.11. Certainly, there are some areas where it appears that impressive returns on innovation investment are being made. For example, Network Rail, in conjunction with the Rail Industry Association, has suggested it has achieved a potential return of £38 million worth of benefits from an investment of less than £2m in respect of its Innovation Management Process. If this level of return could be delivered across the industry, the RVfM study's target of a £190m yield from innovation would appear to be quite achievable without any regulatory intervention. However, the RVfM study itself presents evidence that the typical range of returns on innovation lie between 1.5:1 and 3:1.

Barriers to Innovation

10.12. The assessment in the RVfM study was that industry funding of innovation would increase from £34 million in 2009/10 to £75m by 2018/19[134] to deliver the £190 million of savings it considered innovation could provide: an increase of 120%. This suggests a need to consider whether there are barriers to innovation, including both within the regulatory regime or barriers that regulation could remedy.

10.13. In general, levels of innovation may be too low where the benefit that the innovating firm expects to receive does not reflect the wider benefits that would flow from the innovation. This potential barrier to innovation is generally dealt with through the conferring of intellectual property rights (IPRs) or copyright, which allow the firm to capture these wider benefits by charging others for the use of their innovation for a period. IPRs and copyright exist in rail as in other industries, and so we do not consider that this potential barrier to innovation requires any rail-specific response.

10.14. We have already discussed the fact that innovative approaches tend to carry a higher risk than the adoption of 'tried and tested' approaches. This ability of a firm to innovate may therefore reflect its ability to bear this higher risk. The extent to which this is a barrier to innovation in the rail industry will not be uniform across the industry. It may not be a barrier to innovation for Network Rail, with its large asset base and regulated revenues. But it may be a factor for individual TOCs, which are often thinly capitalised and therefore less able (in their current forms) to bear risk.

10.15. A recent report[135] by the Technical Strategy Advisory Group (TSAG) suggested that there are a number of barriers to innovation in the rail industry in GB. This concluded that the main problems were:

(a) poor alignment of incentives, a consequence of which was a failure within the industry to work in a co-ordinated way to achieve common aims;

(b) a lack of a stable planning environment for innovation, which the report claimed had led to risk aversion; and

(c) a fragmented industry approach to implementing new processes, including piloting, acceptance testing, and management of implementation risk. These problems with delivering innovative projects[136] suggest that project scoping and implementation are as much of a problem as having insufficient resources to fund innovative approaches.

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134 RVfM Detailed Report, page 190, http://www.rail-reg.gov.uk/server/show/ConWebDoc.10401

135 'Enabling technical innovation in the GB rail industry – barriers and solutions', TSAG, 2010

136 For instance, in axle counter reliability, the High Performance Switch System (HPSS) and the European Rail Traffic Management System (ERTMS)

10.16. The industry has taken steps to address these issues in recent years. For instance, TSAG has been established by the industry to co-ordinate the planning of innovative projects. Network Rail has also made significant progress in recent years in introducing processes to improve the delivery of innovative projects.

Options for encouraging innovation

10.17. When considering options for innovation incentives, it is important that we focus on the outcomes we want to achieve and understand the role that innovation could play in achieving them – we should not view innovation as an end in itself or think that we know what the 'right' level of innovation is. We also need to be clear about the barriers to innovation that we are attempting to address through our incentives, and to use the right tools to address them bearing in mind that regulation can itself be a barrier to innovation.

10.18. We discuss some of the options for encouraging innovation below. These include those suggested by stakeholders through the responses to our May consultation and the industry's own proposal as set out in the Initial Industry Plan (IIP).

Options raised in the responses to our May consultation

10.19. In our May consultation, we discussed innovation and suggested that this was potentially an issue that we needed to consider as part of PR13. Amongst the comments that stakeholders made on innovation, there was a consensus that the alignment of incentives among industry parties was an issue that needed to be addressed (consistent with the TSAG study mentioned above). However, there were differing views on how this should be achieved.

10.20. Network Rail proposed the creation of a specific innovation fund for innovative projects. It also backed the RVfM study's proposal of a Rail Innovation and Growth Team (RIGT) as a way of addressing 'silo thinking' within the industry.

10.21. Other responses suggested that improving the transparency of information on how the industry invests in innovation would help as this could increase the power of reputational incentives. For example, in the form of a common series of performance indices focused on the interface between Network Rail and its contractors.

The IIP proposals

10.22. The IIPs[137] proposed a £150 million fund in CP5 to provide industry funding for system-wide innovation opportunities to address specific cross-industry problems[138]. The fund would be allocated to projects that aim to reduce whole-industry costs and / or generate additional revenue. The cross-industry governance of these funds would be provided by the Technical Strategy Leadership Group (TSLG).

10.23. The IIPs proposed that £100 million from this fund would be used to progress development or "demonstrator" projects on key programmes identified by TSLG, with the remaining £50 million being reserved for emerging schemes in CP5.

Specific funding arrangements

10.24. As has been suggested by some stakeholders and in the IIPs, specific funding arrangements can be established to support innovation. This kind of approach has been used in other regulated utilities in Great

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137 Initial Industry Plans for both England and Wales, and for Scotland, September 2011

138 This would be, on average, equivalent to approximately 40% of what the RVfM study considers that the industry should be spending on innovation each year.

Britain, with funding being linked to innovative solutions that address particular areas of regulatory concern and contribute to desired outputs/outcomes. Industry participants have the opportunity to propose specific innovative approaches to deliver the desired outputs/outcomes and, if accepted by the regulator, secure the funding. This should support innovation across the industry rather than just by the main company being regulated (i.e. Network Rail).

10.25. The two main options available are as follows:

(a) Longer price control periods for innovative projects

The duration of the price control period is determined on the basis of the overall risk profile of Network Rail. Innovative projects are, by their nature, unlikely to fit this overall risk profile, and a five year funding settlement may not provide sufficient certainty to make the project feasible compared to alternative, less innovative, approaches. Extending control periods for innovative projects can make innovative projects more attractive to investors by providing more certainty in respect of the allowed return of the project. A disadvantage of this approach is that it extends the period before customers benefit from innovation in the form of lower prices (though they may well benefit from an improved service before then).

(b) Targeted funding for innovative projects

Where innovation requires upfront expenditure on R&D and has a high degree of uncertainty over whether those costs will be recovered, even if the R&D produces a successful innovation, there may be under-investment in innovation. This is more likely to be a problem where the levels of R&D required are high, where there is considerable uncertainty as to the success of the R&D in generating successful innovation and where there is considerable uncertainty as to the income the innovation will generate for the firm. This may well be the case, for example, where innovation is required to generate a paradigm shift, where take up of the innovation is uncertain and payback periods long.

Arrangements to allow innovative projects to earn a different (higher) rate of return over normal activities could either be incorporated into Network Rail's regulatory asset base (RAB), or could be made contestable and auctioned off separately. Such specific funding approaches are, by their nature, not output-based. They are also non-neutral and require an explicit assumption that innovative solutions are intrinsically 'a good thing', whereas an investment decision should, in principle, balance potential risk and reward in a neutral way. They can also require a judgement by the regulator on what an 'optimal' level of R&D spend would be through setting the level or scope of the funding.

A risk with targeted funds is that stimulating R&D spend by the regulated company might just provide the regulated company with additional money for undertaking R&D that would have been carried out anyway as a result of regulatory efficiency targets over the price control period. A further risk is that by artificially stimulating spend by the regulated company, we would 'crowd out' spend by other companies who might otherwise have undertaken more effective and more efficient R&D.

Regulatory support for innovation: an example from the energy sector

Ofgem has used versions of both funding approaches to address innovation issues in the offshore electricity transmission and distribution industries. It has allowed firms to submit bids for an allowed return on offshore transmission projects, with funding for individual projects being allocated through auctions to ensure an efficient allocation of funds. This reduces the level of uncertainty that firms face when constructing business cases for innovative projects by providing them with guaranteed income streams. This approach has also been used in the case of DC high voltage interconnectors linking to other EU member states.

Efficiency targeting

10.26. An alternative to specific funding approaches to incentivise innovation is through the setting of a challenging efficiency target for the company being regulated. Rather than seeking to provide money for innovation, this approach seeks to increase the need for the regulated firm to innovate. It therefore does not carry the same risks associated with wasteful use of funds and crowding out. But there is no guarantee that this approach will result in innovation, if the regulated company can meet the target by other means, especially where those other means are considered as less risky.

10.27. The extent to which efficiency targets create incentives to innovate depends in part on the level at which they are set. Targets may be set, for example, on the assumption that the company should catch up with the efficiency frontier, so that, if the company catches up successfully, the incentive for innovation comes from outperformance incentives. Alternatively, targets could be set at a level that assumes an increase in efficiency that would require a shift in the frontier. In this case, the regulated company would need to innovate simply to achieve the settlement and the incentive to innovate comes from the risk of under-performance. Wherever the targets are set, the extent to which they drive innovation will also depend on the size of the reward or penalty the regulated company would receive in return for under- or outperforming the efficiency targets.

10.28. We use this approach currently through our existing regulation of Network Rail. It is also used in other regulated sectors such as the water industry, where there has been innovation in respect of better management of pipe leakage. In the water industry, Ofwat determines target 'sustainable economic' levels of leakage for each water company and imposes financial sanctions on those that fail to meet their targets. Thus innovation itself is not specifically incentivised but water companies are incentivised to respond to their regulatory targets and some have done this through innovation.

10.29. Continuing with an efficiency targeting approach in CP5 would allow us to continue to set challenging outputs for a given level of allowed return, and would let Network Rail decide on how it is best able to meet these outputs. We provide Network Rail with an incentive to outperform the efficiency target, and it should therefore select projects on the basis of how they help it to deliver the outputs rather than because the projects satisfy particular funding criteria (or whether, in fact, they have any innovative content at all). However, as discussed in chapter 4**,** there is currently an issue about whether Network Rail's overall corporate incentives encourage it only to meet, rather than exceed, its regulatory targets.

10.30. One potential disadvantage of this approach is that, in the absence of special allowances for innovation in a price/revenue capped industry for a given level of return, the firm is incentivised to select projects that have a lower risk profile. This just means that the firm is more likely to seek to meet its targets

in the least-cost way, which may be desirable in itself. But it could lead to under-investment in innovative projects, especially where wider benefits are not reflected in the return it would receive.

Using key performance indicators / improving transparency

10.31. Key performance indicators (KPIs), such as those in respect of R&D spend, could be used to promote transparency in the level of R&D undertaken by Network Rail and thus provide a reputational incentive for it to engage in R&D, potentially increasing innovation. These could also be linked to specific targets. These targets could either just be used to strengthen the reputational incentive.

10.32. Alternatively, KPIs for R&D could become targets or become enforceable in some way. But this would involve the regulator setting input levels, which would run counter to our general preference for an approach focussed on outputs and outcomes. It would distort the regulated company's decision on the most appropriate solution to a problem and could therefore drive inefficiency

10.33. As a further option more output-focussed KPIs could be used. An output-based approach would have advantages, given that there is no necessarily link between inputs (R&D spend) and innovation actually achieved, and because innovation is not an end in itself but has value to the extent that it provides new and better ways of delivering what customers and society want.

10.34. Ofgem has used an approach consistent with this through its 'RIIO' methodology[139] which it has used in its gas distribution and electricity/gas transmission price control reviews. This involves it setting KPIs for outputs which as identified as 'secondary deliverables'. A secondary deliverable is an indicator that is correlated to the primary outputs specified by the regulator, and so is a measure rather than a specific target or output itself.

Innovation prizes

10.35. An additional approach, which could be an alternative or complement to those listed above, is an innovation prize. Prizes can be powerful motivators. They may have a financial sum associated with them or be of reputational value alone.

10.36. Ofwat has supported a prize for innovation within the Water Industry Achievement Awards since 2009. The prize provided a focus for innovation throughout the industry supply chain rather than just the water companies themselves.

10.37. If we were to establish an innovation prize, it would be important to ensure that it was open to a wide range of possible contenders, recognising that innovation in rail can come not only from Network Rail, and passenger and freight train operators but also from the supply chain and from outside the industry.

Conclusion and our proposed approach

10.38. We agree with the findings of the RVfM study that innovation will be required if the rail industry is fully to meet the value for money challenge. We are keen to facilitate and encourage innovation. We are also keen to ensure that the revenue Network Rail receives is spent efficiently, and that R&D by Network Rail does not crowd out R&D from others in the industry. We also wish to encourage the industry to work together to generate and adopt more innovative approaches.

10.39. We propose to continue to set challenging efficiency targets that will provide Network Rail with an incentive to innovate. We expect that this will remain the main way in which we encourage innovation in the industry. As part of PR13 we will consider how best to set those targets, and the extent to which they should reflect not only catch up efficiency but also frontier shift. We will also consider the size of the incentives on Network Rail for outperformance and the avoidance of underperformance.

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139 RIIO stands for "Revenue=Innovation + Incentives + Outputs".

10.40. We are not currently minded to extend the control period for innovative projects, as we have seen nothing to suggest that Network Rail cannot fund innovative projects within the standard regulatory approach. The examples of ERTMS, the Network Operations Strategy and high output track equipment demonstrate this. We would welcome responses on this issue.

10.41. We are not in principle against the use of targeted funds. But we are not currently persuaded that there is a need for the sort of innovation that would suggest the need for such a fund (i.e. where the potential benefits outweigh the cost that the innovating firm could be expected to recover from its investment). We would welcome evidence from respondents on this. We would also welcome responses on how we could avoid the disadvantages of any such targeted fund, in particular assuring value for money and minimising any crowding out.

10.42. We would welcome responses on the value of R&D KPIs, on what such KPIs should reflect and how we should use them. We would also welcome responses on the potential for an innovation prize to stimulate innovation in the industry, on the sort of prize that might be effective and on who should be eligible to compete for it.

10.43. Please see the end of the chapter for the questions on which we are particularly seeking stakeholders' views.

Environmental Incentives

10.44. In this section we outline the approach we propose to take to encourage the industry to achieve the environmental outcomes described in chapter 3. We set out how rail can contribute to the achievement of the UK Government's climate change objectives and other environmental outcomes and the contribution that regulation can make to this. We then set out a range of options to encourage the industry in this regard, as well as summarising our initial response to the industry's own proposals in this area.

Rail's contribution to the environmental outcomes sought by funders and society

10.45. In response to the challenge of climate change, the UK Government has set tough carbon reduction targets for the UK. These require carbon emissions to be reduced by 80% below 1990 levels by 2050 and at least 34% lower by 2020[140]. The domestic transport sector itself accounts for a significant proportion – around 20% - of the UK's carbon emissions[141].

10.46. However, whilst rail, as part of this sector, contributes to these emissions, in general terms it is relatively environmentally friendly compared to other modes of transport such as road and air. Rail is therefore well placed to contribute to the UK's carbon reduction targets. Additionally, as set out in chapter 3, rail also supports other positive environmental outcomes in the form of fewer road accidents and reduced road congestion and associated pollution (e.g. air quality benefits).

10.47. As well as seeking to maintain its comparative advantage to other modes, rail can increase the contribution it makes to these positive environmental outcomes by:

(a) facilitating 'modal shift' from other more polluting forms of transport by persuading potential passengers and freight customers to switch to rail; and

[140] As set out in the In May 2009, the UK Government established three carbon budgets for the years 2008-2012, 2013-17 and 2018-22 which set out the 34% target. See http://www.decc.gov.uk/en/content/cms/tackling/carbon_plan/carbon_plan.aspx.

[141] Page 3, UK Transport and Climate Change data factsheet (2008)

(b) improving its own environmental record – for example, by adopting measures to reduce the amount of energy required to operate train services and thus reducing the railway's carbon emissions.

10.48. We want our policies to support both of these environmental outcomes. Of course, by increasing the attractiveness of rail, as well as facilitating modal shift, the industry is likely to generate entirely new journeys that would not otherwise have been made. Whilst this could be a good thing overall in terms of creating additional revenue, it may only be achievable whilst generating additional CO_2 emissions.

10.49. There is also a potential trade-off between the two environmental outcomes we have set out in (a) and (b) above. One way of encouraging modal shift is through offering lower prices for services relative to other modes. However, if we were to incentivise the rail industry to improve its own environmental record this could lead to increases in cost and increases in prices to customers, which may reduce rail's relative attractiveness. This would be particularly true if the rail industry faced environmental costs that other modes, such as road, did not face.

How regulation can help

10.50. Through our regulation, we can support the industry in increasing its positive contribution to the environment by:

(a) setting appropriate incentives to encourage greater energy efficiency by the industry;

(b) facilitate investment by government in schemes that would deliver environmental benefits (such as electrification) by advising ministers of the efficient cost of such projects and monitoring any allocated funding to provide assurance that this is used effectively;

(c) playing an enabling role by co-ordinating industry initiatives that deliver environmental benefits. For example, we worked closely with the industry to establish the framework for train operators to be billed for traction electricity using on-train metering; and

(d) Overseeing the efficient use of existing network capacity so that the most is made of the rail network in terms of being able to accommodate additional traffic – including where this is transferred from other modes. For example, through our regulation of access contracts and, potentially, through the use of capacity incentives (as discussed in chapter 7).

Options for environmental incentives

10.51. We consider that in the incentives that we put in place for Network Rail to improve its efficiency will have a significant effect in driving environmental improvements. We note in particular our intention to provide incentives for Network Rail to undertake whole-life costing, and our support for industry reform and our work on the transparency of whole-industry costs and TOC benchmarking that will encourage a more whole-industry view of cost.

10.52. In addition to the environmental benefits that we may expect from these generic incentives, we set out below the main specific incentive options available to us to support better environmental performance.

Incentives to encouraging Network Rail to reduce transmission losses

10.53. Whilst electrified rail routes provide for greater energy efficiency compared to the diesel alternative, as with any electricity transmission system, the electrification systems are not 100% efficient as energy is lost as heat in the transmission through the third rail or overhead line equipment. Whilst significant levels of energy are lost through these each year, the extent of these losses can be reduced.

10.54. As infrastructure manager, Network Rail is able to manage these losses through its asset planning and delivery of enhancements. However, at present, it is not well incentivised to do so as it passes the full

cost of the electricity used through to the operators of electric trains. It therefore would feel little benefit from reducing losses.

10.55. In our May consultation, we discussed encouraging Network Rail to manage losses more efficiently through ensuring that Network Rail is funded for an efficient level of losses, rather than it passing on the full cost of traction electricity to train operators. In response, there was substantial support from stakeholders for Network Rail to have a financial incentive to manage transmission losses efficiently (though there were some concerns that if this incentive was not set carefully, it could lead to inefficient investment in this area).

Incentives to switch to on-train metering

10.56. Prior to 2010, all electric train operators were billed for the electricity that they use on the basis of modelled consumption rates. However, in 2010, the option for train operators to switch to on-train metering (OTM) was introduced. This provides for much greater accuracy in billing and encourages the use of more efficient driving techniques as operators are able retain any savings that they make (whereas this is not possible using modelled consumption rates). To date, two train operators have switched fully to OTM, with a couple of other operators having switched on a trial basis.

10.57. In our May consultation, we discussed strengthening the incentives on train operators to switch to OTM and set out a proposed framework for this[142].

10.58. The consultation responses we received on this were generally positive. There was some variance in views on how much on-train metering is required (ranging from support for compulsory metering of all trains to billing using partial fleet metering).

Reputational incentives

10.59. There is scope for us to use reputational incentives to encourage greater energy efficiency. To some extent, we already do this. In our National Rail Trends document, we already monitor CO2 emissions by including measures of energy efficiency and carbon emissions, though we do not set specific targets.

10.60. As more train operators become metered, there will be more scope for publicly monitoring actual energy consumption by operator which will bring an element of reputational competition to be the ‘greenest’ operator.

Environmental surcharges

10.61. Surcharges for less energy efficient rolling stock could be introduced to encourage a shift to more environmentally friendly equipment. However, as we said in May 2011, whilst we think it is right that the ‘polluter pays principle’ should apply, the drawback of surcharges in rail is that no similar charges exist for competing transport modes. So, such an incentive would be perverse as it would put certain rail services at a competitive disadvantage and lead to a modal shift away to less environmentally friendly forms of transport.

10.62. The EU is currently considering the introduction of Noise Differentiated Track Access Charges, albeit initially on a voluntary basis. We are similarly concerned that this could result in a similar effect, introducing a disadvantage for rail as compared to other modes and therefore potentially leading to perverse outcomes.

Non-environmental incentives with complementary effects

10.63. As mentioned above, there are non-environmental incentives that we set relating to capacity utilisation. These, if set correctly, can support a better use of capacity and thereby encourage greater use of rail and provide for modal shift from less environmentally friendly forms of transport.

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142 See paragraph F.32 of the Annexes in our May consultation document.

Environmental incentives not set by us

10.64. It is worth noting that in addition to the incentives that we can introduce ourselves, there are incentives set by other bodies as well as competitive pressures in the market that provide environmental incentives. The Emissions Trading Scheme (ETS), for example, sets a carbon price for many of the 'raw' materials used in renewals and enhancements (such as steel), and thus the carbon cost is already factored in to access prices to an extent through the ETS. The industry therefore pays the market price for carbon which provides price signals to encourage efficient carbon consumption.

10.65. There is also fuel duty set by the UK Government which is paid by all train operators.

10.66. Finally, commercial pressures faced by operators in competitive markets and regulatory pressures provide an incentive to use fewer inputs overall and thereby improve efficiency, which may be environmentally beneficial (e.g. by driving improvements in energy efficiency).

The industry's proposition for the environment

10.67. The recently published IIPs set out the industry's proposition for how rail can improve its environmental record[143]. It suggested that emissions from rail can be stabilised by the end of CP5 and substantially reduced in the longer term. This is mainly predicated on a strategy of electrification and the government's decarbonisation of the national grid.

10.68. The IIPs identified the following barriers to the industry's achieving significant reductions in carbon:

(a) a poor understanding of energy/carbon saving potential and the financial viability of interventions, in part due to slow progress with traction electricity metering and a lack of robust measurement of energy use;

(b) the fact that costs and benefits do not always sit within a single organisation, with co-operation and sharing mechanisms unclear or inefficient;

(c) carbon and energy having inadequate consideration within the strategic and operational decision making processes; and

(d) insufficient account taken of energy and carbon, within approaches to minimise industry whole-life costs.

10.69. To address these barriers, the IIPs proposed an industry 'Carbon Management Framework' (CMF), along with an implementation plan. The IIPs considered this framework as being central to the industry's ability to deliver carbon reduction over and above the IIP's base plan. The CMF is intended to provide a more robust approach to measuring and monitoring of emissions, to provide greater transparency of results and therefore to provide more scope for reputational incentives.

10.70. The five principles of the CMF are:

(a) energy efficiency, hence cost reductions, should be included in franchise contracts, alongside robust measurement and reporting

[143] Page 106, http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064778714 and Page 111, http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064778713.

(b) an increase in the metering of traction energy by CP5 should be incentivised, to ensure that operators pay for what they use and reap the benefits of efficiency savings;

(c) Network Rail should be incentivised through appropriate financial mechanisms, to reduce electrification system losses efficiently;

(d) Whole life energy and cost savings should be included as criteria in investment decisions and project criteria, applied across organisational and franchise boundaries[144]; and

(e) A more robust approach to measuring and monitoring carbon emissions should be implemented, covering both traction and non-traction.

10.71. We warmly welcome the approach set out in the IIPs and look forward to seeing this developed further through the proposed implementation plan.

Conclusion and our proposed approach

10.72. In light of the encouraging response to our consultation in May 2011 for our proposals on OTM and introducing incentives to encourage Network Rail to management of transmission losses more efficiently, we intend to develop our proposals in this area further and will liaise with stakeholders as appropriate. Beyond this, we consider that alongside improving incentives for traction electricity outlined above, we can best support the reduction of carbon emissions through the output framework supporting the industry's CMF and implementation plan.

10.73. We consider that there is scope for making more use of reputational incentives to support better environmental outcomes. To this end, we note that the IIPs suggest a trajectory for reducing carbon emissions which we could monitor against.

10.74. We are not minded to introduce environmental surcharges. This is on the basis that they would be likely to increase costs for rail operators, reducing their competitiveness compared to less environmentally sustainable forms of transport which do not face similar charges. Such charges would thus be counterproductive to helping to achieve the UK's carbon reduction targets and other environmental benefits that flow from modal shift.

[144] This suggests we need to explore different project financing assessment models that better take into account consideration of whole life whole system impacts

Questions

10.75. The questions raised in this chapter are summarised in the box below.

Chapter 10: Questions for stakeholders

Q10.1: Do you agree with our overall proposed approach to incentivising innovation? If not, what do you propose we do instead?

Q10.2: What merit do you think there would be an innovation fund? How should such a fund work? How would we guard against 'crowding out' and ensure the fund did not displace existing expenditure?

Q10.3: What merit do you think there would be in an innovation prize? How should such a prize work? Who should be eligible to enter? What sort of prize would best stimulate genuine innovation?

Q10.4: In relation to the use of output KPIs, what KPIs do you think we should target and why? Should we monitor them only or should they have some incentive attached to them and if so what?

Q10.5: Do you think that KPIs should be introduced for companies other than Network Rail to monitor innovation across the wider industry?

Q10.6 Beyond any comments that you may have made to us in response to our May consultation, do you have any comments on our overall approach to environmental incentives? Specifically, do you think we should introduce other environmental incentives beyond those that we are proposing? Do you think we should go further in encouraging the rail industry to improve its environmental performance even if this resulted in a shift to other modes?

Q10. 7 We are keen for the industry to propose methodologies for monitoring emissions and producing improved whole-life, whole-industry business cases. What role do you think the ORR should play in this process?

Annex A: List of consultation questions

Q3.1: Do you agree that in PR13 we should focus on incentivising delivery of outcomes that customers, wider society and funders value?

Q3.2: Do you agree with our assessment of the outcomes that customers and society value?

Q3.3: How do you see the trade-offs between and within the interests of customers, funders and society? How do you see the trade-offs between current and future customers, funders and society?

Q3.4: To what extent do you think we should measure and monitor the delivery of those outcomes and outputs we incentivise? What metrics should we use? To what extent is it practical and desirable to monitor delivery of outcomes at the local level?

Q3.5: What do you see as the key enablers for Network Rail's successful delivery of outcomes in CP5? How should we best measure Network Rail's performance against these enablers? How should we best incentivise these?

Q3.6: What do you see as the key features of the transmission mechanism? How do Network Rail's customers respond to changes in Network Rail's behaviour and how does this translate into the experience of end-customers and society? How should we take this into account in the design and implementation of our incentives?

Q3.7: How do you think industry reform would affect the transmission mechanism? How do you think changes to franchise agreements would affect the transmission mechanism?

Q4.1: What are your views on our proposed principles for efficiency sharing arrangements between Network Rail and train operators? To what extent to do you think they will improve the incentives on train operators to work with Network Rail to reduce its costs?

Q4.2: What are your views on our proposed design of a route-based efficiency sharing mechanism, as described in chapter 4 and in Annex B? To what extent to do you think they will improve the incentives on train operators to work with Network Rail to reduce its costs?

Q4.3: What are your views on our assessment of the role of bespoke arrangements? In what circumstances do you think bespoke arrangements are likely? What advantages and disadvantages might they bring? How should we best assess them? What are your views on the scope for excluding some of Network Rail's costs from the default efficiency sharing mechanism?

Q4:4 What are your views on our assessment of potential impacts of a route-based efficiency sharing mechanism, as described in chapter 4 and in Annex B?

Q4.5: What are your views on our preliminary proposal for exposing passenger and freight operators to changes in Network Rail's fixed costs in subsequent periodic reviews?

Q5.1: Do you think that the current possessions and performance regime broadly help to align incentives between operators and Network Rail in the best interest of customers, funders and society? If not, why not?

Q5.2: Do you think it is appropriate to retain Schedules 4 and 8 as liquidated sums compensation regimes?

Q5.3 Do you think it would benefit customers, funders and society and encourage greater co-operation if Schedule 8 compensation rates from Network Rail to train operators did not reflect the full impact of possessions on revenue and costs? We also welcome any further views on this issue in relation to Schedule 4.

Q5.4: Do you think existing incentives are as effective as they can be in ensuring that Network Rail and train operators perform at a level that is economically and socially optimal, and whether they sufficiently drive Network Rail behaviour? In particular, we invite views on whether we should place further incentives on Network Rail to ensure it fully takes into consideration the impact of service disruption on passengers, i.e. disruption above that already reflected in Schedules 4 and 8 compensation payments for loss of fare revenue, and how we could go about doing this.

Q5.5: Do you envisage any barriers to modifying or replacing the Schedule 4 and 8 regimes in cases where both a train operator and Network Rail wish to? What do you see as the advantages and disadvantages of bespoke approaches? Do you agree with our proposal regarding the circumstances when we will approve bespoke Schedule 4 and 8 arrangements?

Q6.1: In what circumstances do you think bespoke charging arrangements are likely to occur? What advantages and disadvantages could such arrangements have? How might they work for or against the alignment of incentives?

Q6.2: What protection do you think might be needed for third parties not included in the scope of a bespoke arrangement?

Q6.3 Do you agree that it would be helpful for us to set out a set of principles on the basis of which we would decide whether to approve bespoke arrangements? Do you have any views on what those principles should be?

Q6.4 How do you think we should treat bespoke charging arrangements that might span Network Rail control periods or change within control periods?

Q7.1: What are your views, additional to those set out in your response to our May consultation, on our treatment of the following options:

(a) The scope of our proposed review of the volume incentive, including disaggregation by Network Rail route and consideration of a down side as well as an upside?

(b) That we continue to support the rationale for the capacity charge, and will support Network Rail in its work to revisit and recalibrate the charge for PR13?

(c) That we should establish the extent to which infrastructure capacity is under-utilised before proceeding to develop one or more indicator by which to monitor capacity utilisation?

Q7.2: What are your views, additional to those already expressed in your response to our May consultation, on the policy we are considering further to levy a charge to incentivise better use of capacity?

Q8.1: Do you agree with the criteria that we have applied in assessing different options to Network Rail's cost of capital and our approach to its financial structure?

Q8.2 Do you agree that we should use a cost of capital for Network Rail that reflects the risks faced by the business, even though this may not reflect the company's actual financing costs?

Q8.3: How do you think we should deal with the surplus cash that results from such an approach?

Q8.4: What advantages and disadvantages do you see in our regulating Network Rail in a way that preserves the options for changes to the company's financial structure?

Q8.5: How should we strike the right balance between the interests of current customers and funders and future customers and funders?

Q9.1: How do the incentive properties of our different treatments of different classes of expenditure affect operating decisions on the ground, e.g. is it the potential financial gain or loss that motivates actions or is are decisions more based on other factors such as relative complexity, cultural factors (e.g. tradition or professionalism) or the nature of Network Rail's financing and governance arrangements?

Q9.2: Are the incentives on Network Rail affected by the different ways we may assess support, operations and maintenance costs, compared to renewals and enhancements expenditure? In particular, we may use a base year for support costs that is rolled forward by an efficiency assumption, whereas for renewals we will probably not roll forward a base year but will take a view on the likely level of expenditure in each year on a pre-efficient basis[145] and then apply an efficiency assumption.

Q9.3: Do you expect Network Rail's work on whole-life costs to change its decision-making, and in what way?

Q9.4: Is there any evidence of 'capex bias' at Network Rail?[146] To what extent is this undesirable?

Q9.5: Should we seek to equalise the incentives for different types of income and expenditure? How best might we do this?

Q10.1: Do you agree with our overall proposed approach to incentivising innovation? If not, what do you propose we do instead?

Q10.2: What merit do you think there would be an innovation fund? How should such a fund work? How would we guard against 'crowding out' and ensure the fund did not displace existing expenditure?

Q10.3: What merit do you think there would be in an innovation prize? How should such a prize work? Who should be eligible to enter? What sort of prize would best stimulate genuine innovation?

Q10.4: In relation to the use of output KPIs, what KPIs do you think we should target and why? Should we monitor them only or should they have some incentive attached to them and if so what?

Q10.5: Do you think that KPIs should be introduced for companies other than Network Rail to monitor innovation across the wider industry?

Q10.6 Beyond any comments that you may have made to us in response to our May consultation, do you have any comments on our overall approach to environmental incentives? Specifically, do you think we should introduce other environmental incentives beyond those that we are proposing? Do you think we

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145 A pre-efficient basis means at the efficiency levels in 2013-14.

146 Ofwat have recently looked at the issues of capex bias and concluded that it is not clear that the incentive framework (which includes reputational, process and financial incentives) in water and sewerage as a whole is systematically biased towards capex. The paper this is discussed in is available at: www.ofwat.gov.uk/future/monopolies/fpl/pap_tec1105capex.pdf.

should go further in encouraging the rail industry to improve its environmental performance even if this resulted in a shift to other modes?

Q10. 7 We are keen for the industry to propose methodologies for monitoring emissions and producing improved whole-life, whole-industry business cases. What role do you think the ORR should play in this process?

Annex B: Route-based efficiency sharing mechanism

Introduction

1. This is an annex to chapter 4, which concerns aligning Network Rail and train operators' incentives to increase efficiency. In this annex, we provide further details on how we propose a route-level efficiency sharing mechanism would work, and the reasoning and analysis underlying our proposal.

2. The annex is structured as follows.

(a) we present analysis we have undertaken estimating the impact of the mechanism on risk, and illustrative estimates of cost savings; and

(b) we discuss implementation issues.

3. In the annex we refer repeatedly to the efficiency benefit sharing mechanism (EBSM), which we implemented for CP4, the current control period. The EBSM is described in chapter 4.

Analysis of financial risk and impact of efficiency sharing

Introduction

4. This section sets out the statistical modelling we have conducted on the financial risk associated with a route-level efficiency sharing mechanism. This analysis does not reflect on practical considerations relating to the mechanism's implementation.

Modelling approach and assumptions

5. Our analysis relates to a single control period, which for modelling purposes we have taken to be five years. Our results are reported for the whole control period and do not model year-on-year fluctuations, inflation or discounting.

6. We have modelled Network Rail's costs for ten routes, both with and without an efficiency sharing mechanism, Our modelling consists of two stages:

(a) **Stage one – reallocation of risk**: we consider the impact of the re-allocation of risk resulting from the mechanism; and

(b) **Stage two – incentive effects**: we also take account of the incentive properties of the mechanism, taking the form of operators' actions to reduce costs.

7. In the absence of an efficiency sharing mechanism, we take Network Rail's costs[147] for each Network Rail route to be a random variable with a normal probability distribution. We have assumed:

(a) for simplicity and clarity, an expected (i.e. mean) value equal to the route baseline, determined by ORR in the periodic review[148];

(b) a company-wide variation, affecting all routes to the same degree (reflecting company-wide risks, such as the state of the economy, as well as company-wide policies, management and operations). We have set this to have a standard deviation of 3% of costs (across the control period);

(c) a standard deviation that is independent for each route (reflecting route specific management and context). We have set this to be 3% of costs.

8. The standard deviation company-wide is therefore 3.3% (3% + 3%/10, taking account of the cancelling effect of cost variation by route), whereas the route level standard deviation is therefore 6%[149].

9. We ran 500 simulations of Network Rail's costs, and used these to investigate risk for operators and Network Rail.

10. If an efficiency mechanism is introduced, we have assumed that the route baselines, which we would determine in the periodic review, do not change (i.e. the baselines are set on the assumption that efficiency sharing does not occur)[150].

11. In stage two we take account of the incentives which the mechanism delivers. This takes the form of operator effort to reduce Network Rail's costs[151].

12. We do not have quantitative evidence of the likely scale of potential cost savings. We assumed that the cost reduction, of the Network Rail cost apportioned to the operator, is a function of the payback the operator would receive. Our illustrative assumptions are shown in Table B.1. A worked example of how this translates into cost savings is shown in Table B.2; in the example, it assumes that 25% of out or under performance is shared with operators.

[147] The "costs" are Network Rail's costs and revenues in the mechanism. They exclude enhancement costs.

[148] We do not model the strong incentive properties of the baseline, with regulated firms striving to meet or outperform the funding constraints.

[149] The company-wide value is broadly consistent with efficiency variation in CP2 and CP3. The route level variation is an indicative assumption. We could in principle refine our estimate by looking at route-level cost data and considering the extent to which efficiency shocks act at the route or company level.

[150] This assumption makes the presentation of the results easier to understand. In practice, the setting of the baseline is important because, under any mechanism with different rates for out and under performance, the operators' incentives are affected by their perception of the achievability of the baseline.

[151] The mechanism may also impact on Network Rail's incentives, but our assessment is that this would only occur in a number of very specific instances, and is a marginal effect.

Table B.1: Assumed relationship between operator effort to reduce costs and pay-back, for each route

% cost savings allocated to operator (= share from Network Rail x portion allocated to operator)	% reduction in Network Rail relevant costs allocated to operator ("ξ")
Up to 5%	1.0%
Up to 10%	2.0%
Up to 15%	4.0%
Up to 20%	6.0%
Up to 25%	8.0%

Source: ORR illustrative assumptions

Table B.2: Worked example of modelled Network Rail cost savings due to operator effort

	Share of Route	Pay back from REBS	"Operator effort"	Cost saving
Column ref.	**A**	**B = A x 25%**	**C = ξ (B)**	**D = C x A**
Operator 1	60%	15%	6%	3.60%
Operator 2	36%	9%	2%	0.72%
Operator 3	4%	1%	1%	0.04%
Total	100%	-	-	**4.36%**

13. We have considered five stylised train operators:

(a) **Highly concentrated**: an operator serving a single route, in which it has 75% of Network Rail's fully allocated costs;

(b) **Concentrated**: an operator with 80% of its services in one route, and 20% in a second. In the former, it has around 61% of allocated costs;

(c) **Concentrated, small:** an operator with 100% of its services in one route. In the former, it has just over 15% of allocated costs;

(d) **National, large**: an operator with its services spread evenly across Network Rail's routes, with on average around 8% of allocated costs in each route; and

(e) **National, small**: an operator with its services spread evenly across Network Rail's routes, with on average around 2% of allocated costs in each route.

14. In our analysis, we have considered the impact of a REBS mechanism on operators' profits. We have assumed that operators' expected profit, in the absence of the mechanism, is six per cent of their annual costs. We assumed that a large operator had annual costs of £570 million and a small operator had annual costs of £120 million.

15. For ease of interpretation of the analysis, we assumed that the ratio of allocated Network Rail costs to each operator's total costs (including rolling stock costs etc) was the same for all operators. In practice, this relationship will vary (just as the fixed charge varies as a proportion of each operator's costs). Hence, all other things being equal, a mechanism with uniform parameters across all routes will have a greater proportionate effect on some operators than others; but we have not modelled these differences.

16. The mechanism design options we analysed are set out in Table B.3.

Table B.3: Mechanism design options

Option	Option name	Share of outperformance	Share of under performance
1	Upside only	25%	0%
2	Symmetric	25%	25%
3	Asymmetric	25%	10%

17. The main simplifying assumptions we have made are as follows:

(a) we modelled a control period, not individual years; for modelling purposes, we have taken the control period to be for five years;

(b) we have not tested a capped mechanism (a mechanism that is capped would not share Network Rail's costs beyond a certain fixed percentage);

(c) We have not taken into account any subsequent adjustments to profit, for example in the form of tax, Network Rail rebate, or franchise revenue or profit sharing arrangements;

(d) We have treated the different costs and revenues included in the mechanism as a single amount.

Results for Network Rail

Conclusions

- Our analysis suggests that the mechanism reduces Network Rail's risk, both in terms of variance and – for the symmetric mechanism and to a lesser extent the asymmetric mechanism - in terms of the scale of the downside
- Depending on how the efficiency baseline is set, it may also increase Network Rail's expected profit through operators' actions to reduce costs

18. First we consider the risk effects of each mechanism, *without taking account of operators' actions to reduce Network Rail's costs*. The results are set out in Table B.4, and relate to only those costs and revenues included in the mechanism. As the results are calculated using a statistical model (with 500 observations), they are subject to some random variation, particularly with respect to the "worst case" scenario. The *relative* performance of the different options is not subject to variation, however.

Table B.4: Network Rail company-wide performance relative to baseline (% of relevant costs) *in the absence of operator effort to reduce costs*

Mechanism	Mean	Standard deviation	"Worst case" (1 in 20 CPs)
None	0.1%	3.0%	-5.0%
Upside	-0.3%	2.6%	-5.0%
Symmetric	0.0%	2.5%	-4.2%
Asymmetric	-0.2%	2.7%	-4.6%

Table B.4 shows that:

(a) (prior to taking account of operators' downward pressure on costs) both an upside only mechanism and an asymmetric mechanism would have the result of marginally reducing Network Rail's expected profit;

(b) all mechanisms reduce the standard deviation (and variation) in profit;

19. Table B.4 also shows the worst case, taken to be a one-in-20 control periods (5th percentile) event. In this case, Network Rail's costs are 5% above the baseline, and these costs are not shared under the symmetric mechanism. Network Rail's exposure is reduced under the symmetric and asymmetric mechanism.

20. Network Rail has expressed concern that applying a mechanism at route level rather than company-wide might expose it to greater risk because it is less able to offset the down side on some routes with the up side on others. We can see that this effect may occur when Network Rail is performing close to its baseline, but not in the higher risk scenarios of more widespread under performance. Intuitively, if the company is doing particularly badly, this is likely to be in part due to company-wide effects, and therefore Network Rail would benefit from sharing that downside with operators. Hence we do not see that it is a material concern.

21. The above analysis does not take account of the impact of operator effort. If this is taken into account, the findings of our analysis are that an RES mechanism, with some sharing of under-performance, would increase Network Rail's expected performance overall and reduce Network Rail's downside risk, with the net effect that its funding requirement is reduced.

Results for train operators

Conclusions

- Under the upside only and asymmetric mechanisms, the mechanism increases operators' expected profit; our analysis suggests that operators' risk is quite small (and potentially not material when other operators' risks are taken into account) – and the expected impact is positive. Under the symmetric mechanism, the down side risk is greater (under a "worst case" potentially up to 20% of profit)
- When the incentive effects of the mechanisms are taken into account (but the baseline is not adjusted) under our illustrative analysis, medium to large operators concentrated in one or two routes appear to have little prospect of downside. This also holds, albeit to a lesser extent, for other operators, provided that the operators with which they share the route are also acting to reduce Network Rail's costs.

22. We first considered only the risk impacts of the sharing arrangements. The results - measured relative to an option of no efficiency sharing mechanism - are set out in the Tables B.5 to B.7. The figures in brackets represent the financial rewards from the mechanism as a percentage of operators' expected profits.

Table B.5: Upside only mechanism – impact on operator profit (£m)
in the absence of operator effort to reduce costs

Stylised operator	Mean	Standard deviation	"Worst case" (1 in 20 CPs)
Highly concentrated	£10 (6%)	£13	£0 (0%)
Concentrated	£7 (4%)	£10	£0 (0%)
Concentrated, small	£1.1 (3%)	£2	£0 (0%)
National, large	£7 (4%)	£7	£0 (0%)
National, small	£1.3 (4%)	£1.3	£0 (0%)

Table B.6 Symmetric mechanism – impact on operator profit (£m)
in the absence of operator effort to reduce costs

Stylised operator	Mean	Standard deviation	"Worst case" (1 in 20 CPs)
Highly concentrated	-£1 (0%)	£22	-£36 (21%)
Concentrated	£0 (0%)	£16	-£30 (18%)
Concentrated, small	£0 (0%)	£3	-£5 (13%)
National, large	£0 (0%)	£11	-£18 (10%)
National, small	£0 (0%)	£2.2	-£4 (11%)

Note that the expected value is zero – fluctuations round this are due to sample size

Table B.7: Asymmetric mechanism – impact on operator profit
in the absence of operator effort to reduce costs

Stylised operator	Mean	Standard deviation	"Worst case" (1 in 20 CPs)
Highly concentrated	£4 (3%)	£16	-£14 (8%)
Concentrated	£4 (2%)	£11	-£12 (7%)
Concentrated, small	£1 (2%)	£2	-£2 (5%)
National, large	£3 (2%)	£8	-£8 (5%)
National, small	£1 (2%)	£2	-£2 (4%)

23. Under the asymmetric mechanism, the downside risk (one in twenty control period event) is less than 10% of an operator's expected profit. Given that this is just one of several risks an operator would bear, this may not be a material risk. For the symmetric mechanism, the downside risk can be up to around 20% of expected profits, before taking into account operators' efforts to reduce costs.

24. Under stage 2 of the modelling, we take account of the incentive properties of the mechanism. In particular operators will act - whether through cooperation or challenge - to reduce Network Rail's costs. We do not have empirical evidence regarding the possible scale of the impact. For illustrative purposes, we have adopted the relationship that we set out in Table B.1.

25. The impact of each mechanism on each operator, taking this incentive effect into account is shown in the Tables B.8 to B.10 below. The associated whole-industry illustrative cost savings across five years are around £350 million for the symmetric mechanism, though less for the other mechanisms.

26. The operators whose services map well to a Network Rail route have the largest expected benefits from the mechanism, reflecting their greater expected effort. The worst case (one in 20 control periods event) amounts to around 12% of profit under the symmetric mechanism, and marginally less under the asymmetric mechanism.

Table B.8: Upside only mechanism – impact on operator profit
inclusive of operator effort to reduce costs

Stylised operator	Mean	Standard deviation	"Worst case" (1 in 20 CPs)
Highly concentrated	£26 (16%)	£21	£0 (0%)
Concentrated	£15 (9%)	£13	£0 (0%)
Concentrated, small	£1.4 (4%)	£2	£0 (0%)
National, large	£10 (6%)	£8	£0 (0%)
National, small	£2.0 (6%)	£1.6	£0 (0%)

Table B.9 Symmetric mechanism – impact on operator profit
inclusive of operator effort to reduce costs

Stylised operator	Mean	Standard deviation	"Worst case" (1 in 20 CPs)
Highly concentrated	£25 (14%)	£23	-£16 (9%)
Concentrated	£13 (7%)	£16	-£13 (8%)
Concentrated, small	£0.7 (1%)	£3	-£4 (12%)
National, large	£7 (4%)	£12	-£13 (7%)
National, small	£1.3 (3%)	£2.4	-£3 (7%)

Table B.10: Asymmetric mechanism – impact on operator profit
inclusive of operator effort to reduce costs

Stylised operator	Mean	Standard deviation	"Worst case" (1 in 20 CPs)
Highly concentrated	£24 (14%)	£21	-£10 (6%)
Concentrated	£12 (7%)	£14	-£10 (6%)
Concentrated, small	£1 (3%)	£2	-£2 (5%)
National, large	£8 (5%)	£9	-£7 (4%)
National, small	£2 (4%)	£1.8	-£1 (4%)

Drawing on the analysis to develop our proposal

27. Our interpretation of the analysis is that a downside can be introduced to the mechanism without appearing to increase risk to train operators substantially. A mechanism with a downside has the advantage over an upside only mechanism in that it incentivises train operators even when Network Rail appears to be under performing. In addition, it reduces Network Rail's downside risk exposure. A symmetric mechanism further reduces Network Rail's exposure to downside risk, though has more associated risk for operators.

28. To interpret the significance of the risk for a train operator, we need to understand the size of other risks that the operator manages, and the extent to which the various risks are correlated. For franchise operators, this will depend on the specifics of the franchise, for example revenue protection provisions or profit share arrangements. In this analysis, we have not assessed the scale of this risk from efficiency sharing in the context of operators' other risks, but we will undertake, commission or otherwise support further work to understand this better.

29. We recognise that the risk associated with estimating the baseline for each route, on this first occasion in particular, is to some extent unknown. Given this, we consider that an asymmetric mechanism is an appropriate means by which to balance train operators' incentives against risk. In addition, we consider it appropriate to limit operators' exposure to changes in Network Rail's efficiency through explicit caps, both

upside and downside. We propose that these apply to each year in respect of a divergence from the baseline by more than 10%.

Implementation issues

30. In this section we discuss some issues relating to the practical implementation of a route-based efficiency sharing mechanism. We make reference to our proposed mechanism, and the existing efficiency benefit sharing mechanism (EBSM), both of which are described in chapter 4. The section is organised into the following categories:

(a) measuring costs and efficiency;

(b) interaction of bespoke arrangements; and

(c) some practical issues.

Measuring costs and efficiency

31. Network Rail now produces operating route-level financial data for its regulatory accounts, and this will be audited by the external auditor. For 2010-11, Network Rail produced a set of route-level shadow accounts (unpublished) and for 2011-12 route-level accounting data will also be published. Some of the route level allocation is likely to require further refinement, which we will establish through the regulatory accounting guidelines that the company needs to follow. Under a route-based sharing mechanism, we would need to fix these rules for the entire control period so that operators do not inadvertently lose or gain through the mechanism for changes in Network Rail's cost allocation. We do not anticipate difficulty in doing this.

32. The efficiency baseline, which we determine at a periodic review, sets out the costs that we expect Network Rail to incur during the control period, and relates these to output commitments. A route-level mechanism would require that in PR13 we determine the 'baseline' efficiency assumptions at route-level for the first time. The baseline set by route will be subject to higher levels of uncertainty than that set company wide, both because it is a new process and because individual routes will vary by more than the company as a whole.

33. We have sought to take this into account in our statistical analysis of risk, presented earlier in this annex, and in the design of the mechanism. We can use caps in the mechanism to limit the financial exposure of Network Rail and operators to both underperformance and outperformance relative to the efficiency baseline.

34. We anticipate that the specification of output by route (needed in order to establish whether Network Rail had met its efficiency baseline by route) would largely relate to asset condition. We will monitor Network Rail's asset condition and sustainability, and the consistency of its actions with its asset policies.

35. In determining the efficiency baseline, we have regard to our statutory duties. These include duties regarding Network Rail's ability to finance its activities, and securing value for money. In PR08 our aim was to set a baseline that was challenging but achievable. We intend to establish a challenging determination for CP5 that can be achieved and outperformed and that engagement between Network Rail and train operators is an important element of this.

36. We have proposed an asymmetric mechanism. We are conscious that, under such an arrangement, operators' incentives would be stronger if Network Rail outperforms its baseline (which in turn is in part dependent on their own actions).

37. An efficiency sharing mechanism that is calculated on a yearly basis requires accurate measurement of Network Rail's efficiency improvements by year. This is an issue that we are tackling as part of the implementation of the existing EBSM. We have concerns regarding the accuracy of Network Rail's reporting of in-year efficiency for 2010-11, and are working hard with Network Rail and the independent reporter to resolve these issues early in 2012.

Bespoke arrangements

38. Consistent with the recommendations in the RVfM Study, our aim is to incentivise all operators to contribute to reducing infrastructure costs. Hence our proposal is for a route-based efficiency mechanism that applies as default in the track access contract for all operators.

39. In responding to our May consultation, Network Rail and some operators argued for bespoke arrangements either to replace our default proposal entirely, or with scope for parties to opt-out of a default mechanism.

40. We support the principle of bespoke arrangements as a replacement for the default mechanism, where they do not diminish the incentives to deliver efficiency improvements (and subject to other conditions concerning such arrangements, including absence of undue discrimination of other operators). And we recognise that a bespoke arrangement may be more suitable in the case where a train operator establishes a formal alliance with Network Rail.

41. Our experience from other contractual matters suggests that transaction costs may prohibit bespoke arrangements that incentivise Network Rail's efficiency for a significant number of operators and / or routes. In the absence of such arrangements, we consider that a default mechanism, readily understood by the relevant parties, would be more effective.

42. We are also interested in considering whether it would be appropriate for operators and Network Rail within a route to identify bespoke items that would be 'carved out' of the formulaic approach. We would anticipate that such an arrangement would cover clearly defined activities, areas of expenditure and revenue that are only relevant to the operator concerned, and that would not be detrimental to or discriminate against other operators. An example of this might be a renewal project where Network Rail and an operator negotiate changes to access arrangements.

43. Feedback on our May consultation suggests that there is significant support for bespoke arrangements for enhancement efficiency sharing between operators and Network Rail. We think that such cases are more amenable to bespoke arrangements because, although there may be considerable set up costs, these may be low relative to the potential gains. Bespoke agreements would involve operators and Network Rail agreeing cost and revenue sharing on specific items of enhancement expenditure, where benefit sharing would be based on negotiation rather than pre-defined rates.

44. We welcome the industry's views on our current thinking on bespoke arrangements and also the types of scenarios to which bespoke arrangements would be suited.

Some design issues

45. We would implement this mechanism through changes to the track access contracts. (The EBSM is implemented through Schedule 7 of the model contract). For existing franchises the financial adjustment mechanism in Schedule 9 of franchise agreements will neutralise the effect of this mechanism. The mechanism could be effective for new franchises if it is permitted in a revised Schedule 9, and we are engaging with DfT and Transport Scotland on this matter. The Schedule 9 financial adjustment is not relevant to open access passenger operators and freight operators and so these operators will be subject to the mechanism.

46. We propose that it would be compulsory for almost all train operators, passenger and freight, to participate in the mechanism for the routes in which they operate. The exception to this would be for certain bespoke arrangements, as discussed above, and for operators with very little presence on a particular route. Our proposed mechanism is a simple measure, and we expect the administrative costs for operators (excluding action they take to improve Network Rail's efficiency) to be relatively low. In addition, by proposing caps on exposure, our intention is to limit the risk to which operators are exposed. Therefore, we would consider only the smallest operator (accounting for less than one per cent of variable charge revenue on the route, say) would have grounds for wishing to be excluded from the mechanism on the basis of its size. Another concern is that the direct incentives to engage are weaker for those operators with a smaller presence on the route. We consider such incentives to still be important, however, first because operators will still be incentivised to act to reduce Network Rail's costs in those circumstances where it is not at a cost to themselves; and second because some cost saving initiatives may require the cooperation of several operators, their cooperation will deliver wider returns as they benefit from the cooperation of other operators.

47. The EBSM covers operating, maintenance and renewals expenditure and a number of revenue elements. Enhancement expenditure is excluded from the EBSM, partly on the basis that it is often highly context specific and that special arrangements might be more appropriate. However, some stakeholders have argued that low value, repeatable enhancements would be suitable for inclusion in a formulaic sharing mechanism. Although we think that arrangements to incentivise cooperation between operators and Network Rail for larger enhancement are best dealt with on a bespoke basis, we can see that bespoke arrangements may not be suitable for small scale enhancements because the potential gains will be insufficient to cover the administrative costs. Before deciding whether to include some enhancement expenditure in a default mechanism, we would want to be confident that the classification of such expenditure is clear and unambiguous.

48. As with the current EBSM, we propose that a route-level mechanism would calculate performance on a cash basis rather than amortised expenditure. For example, if Network Rail were to outperform its expenditure target by £10m then, all other things being equal, operators would receive a share of £2.5m (based on a 25% share of outperformance). We adopted this approach for the EBSM to provide a simple and strong incentive for operators, and not to bias against capital expenditure savings. As a result, the incentives between engaging in operating expenditure and capital expenditure savings, from an operator's perspective, are equalised.

49. Network Rail's funding arrangements are such that it effectively borrows to pay for renewals (irrespective of any efficiency sharing), and then recovers the cost over the lifetime of the asset. Under an efficiency sharing mechanism, it has to borrow more in order to pay operators; but overall it is borrowing less than anticipated in the determination because only part of its efficiency gain is shared with operators.

50. We propose that, as with the EBSM, payments calculated and paid annually. We consider that if, as an alternative, payments were to be made at the end of a control period, operators would not face a strong enough incentive to reduce costs in the early years of a control period. This effect is unambiguous for those franchises which terminate prior to the end of the control period. But also reflects the nature of operators' businesses, which are not capital intensive and which are focused on quick returns.

51. The EBSM apportions outperformance between operators on the basis of the variable track access charges paid by the operators. We propose that a route based efficiency sharing mechanism would apportion outperformance or underperformance, for each route, on the same basis. An alternative might be apportioning on the basis of fully allocated costs, using a methodology similar to that used to apportion the fixed charge between franchise operators. We are proposing to retain the former approach because it is unambiguous and simple, and it reasonably reflects the operators' interest in the route.

52. In developing the mechanism, we need to consider interaction between it and the wider incentive and regulatory framework, and franchise provisions.

53. Under the current EBSM, we require train operators to demonstrate to us that they have engaged with Network Rail to identify efficiency opportunities. We have not required detailed evidence of every initiative/potential saving identified. As a general rule, we do not want to hinder the workings of the mechanism with controls relating to evidence of engagement, preferring instead to use the mechanism to incentivise engagement. Under the new route-based mechanism, we propose to adopt a similar approach where we require operators to provide some evidence of positive engagement.

Annex C: Schedules 4 and 8 regimes

1. The Annex provides further explanation of the purpose of the Schedule 8 performance regime and the Schedule 4 possessions regime, and how they work

The Schedule 8 performance regime

Purpose of the Schedule 8 performance regime

2. The Schedule 8 performance regime is designed to:

(a) compensate train operators for the financial impact of poor performance attributable to Network Rail and other train operators.

(b) help align financial incentives between Network Rail and train operators, so the financial impact of performance on revenue and/ or costs incurred by the organisation the disruption is attributable to. For example, it incentivises Network Rail to improve its performance in instances where the cost to Network Rail is less than the increase in revenue that will accrue to train operators as a result of the improved performance; and it incentivises train operators to consider the impact of their performance on other operators

(c) provide appropriate signals so as to drive the decision-making by both Network Rail and the train operators in relation to performance management, for example, investment prioritisation and preparation of business cases for performance improvement schemes.

How the current Schedule 8 performance regime works

3. There are two basic Schedule 8 regimes, one for freight and one for passenger operators[152]. Both are benchmarked regimes where payments are made when Network Rail or train operators' performance diverges from a benchmark. These benchmarks are set by ORR at each periodic review. Both are liquidated sums regime which means that compensation payments are determined formulaically.

4. The performance of a train operator can affect the performance of many other train operators, even those not operating on the same route. For example, a train failure on the East Coast mainline may affect services that also cross other lines, and therefore affect services on the Trans-Pennine and Northern routes. Train operators do not have bilateral contracts with each other. Both regimes channel the impact of one train operator's performance on another through Network Rail in what is called the 'star model'

5. The regimes differ in terms of payment rates. In the passenger regime, payment rates to passenger train operators are set to reflect longer term fare revenue losses resulting from poor performance, and are calculated using service-specific parameters. In the freight regime, payment rates to freight operators are based on the costs they incur as a result of lateness and cancellation. If cancellations exceed a relatively

[152] There is also a schedule 8 regime for charter passenger operators, which is similar to the freight regime.

low threshold (currently 0.41% of services scheduled) a higher payment rate applies, partly to recognise the greater likelihood of revenue losses. In addition under the freight regime freight operators are given some protection against potentially large payments as performance better than benchmark is compensated at 50% of the rate for performance worse than benchmark.

6. With the passenger regime, additional compensation is provided for sustained poor performance, which is currently set at 10% worse than benchmark performance.

7. Poor performance is measured in terms of lateness experienced by passengers. This is the difference between the publically advertised time at a particular point and the actual time at that point.

8. 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 recording points. 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.

9. Train operator payment rates and benchmarks for both passenger and freight regimes were updated as part of the last periodic review.

The Schedule 4 possessions regime

Purpose of the Schedule 4 possessions regime

10. The Schedule 4 regime is designed to:

(a) compensate train operators for the financial impact of planned disruption to services where operators are denied / restricted access to the network, principally as a result of Network Rail undertaking engineering work

(b) helps align financial incentives between Network Rail and train operators so the impact of planned possessions on train operators' revenue and/ or costs is incurred by Network Rail.

(c) provide appropriate signals so as to drive the decision-making by Network Rail in relation to possession management, for example, 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.

How the current Schedule 4 works

11. The possessions regimes for passenger and freight operators are different. Both regimes were restructured significantly as part of PR08. The key features of the passenger regime are:

(a) Operators should receive compensation for all disruptive possessions.

(b) To minimise transaction costs, formulaic compensation is available for less disruptive possessions, with the ability to claim actual revenue and cost compensation where possessions are long or disruption is sustained

(c) Formulaic revenue compensation is based on operator specific Schedule 8 payment rates, with discounts available depending on the notification provided by Network Rail to the train operator which reflect the likely impact on operators and revenue; and

In return for this compensation, franchised operators pay a predetermined access charge supplement to cover a proportion of the estimated cost to Network Rail of the Schedule 4 regime. This is to reflect the fact

that Network Rail is expected to require a certain number of possessions and can be seen as being analogous to the performance benchmarks in Schedule 8.Currently no passenger open access operators opt to pay an access charge supplement and therefore they only receive compensation for very long possessions or sustained disruption. The 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 very severe disruption) and higher payments made for late notice possessions. Freight operators do not pay an access charge supplement, and as a result only receive compensation for significant disruption. However, should a freight operator desire a restriction of use regime of the sort used by franchised passenger train operators, a proposal can be put to ORR for its consideration. The regime is not automatic for freight operators, who have to make individual claims for compensation (based on pre-set liquidated sums).

Annex D: Financial annex

Introduction

1. In this annex we provide further analysis of the differences between the approaches to Network Rail's cost of capital that we discussed in chapter 8. The tables illustrate the net funding (i.e. the net revenue requirement, less FIM fee, less any rebate to government) required in CP5 and other relevant numbers such as debt, based on our high-level indicative financial modelling. The financial modelling we have provided here is at a Great Britain level but the financial implications of the different options will be similar in England & Wales and Scotland.

2. In this annex we have identified the financial effects of using different approaches to the cost of capital. The approaches we have chosen to illustrate the issues contain a number of different assumptions. Therefore moving from one approach to another does not just involve changing one assumption.

3. This annex provides further details of the financial effects of the different approaches that we have modelled and shows some of the differences caused by the individual policy changes, e.g. issuing unsupported debt.

4. In particular, we have:

(a) compared the rebate approach to the cost of debt approach;

(b) compared the use of surplus cash from the allowed return under the ring-fenced fund approach and the rebate approach; and

(c) shown the effect of introducing unsupported debt in both the:

(i) ring-fenced approach; and

(ii) rebate approach.

Financial modelling

5. In Table D1 below we identify that the rebate approach and the cost of debt approach have similar effects on the net funding for the DfT and Transport Scotland and Network Rail's debt levels. To show this effect clearly, we have not assumed unsupported debt is issued in both approaches. This is different to the way we modelled the rebate approach in chapter 8 where we assumed that unsupported debt was issued.

Table D1: Comparison of the rebate approach and the cost of debt approach

£m	Rebate	Cost of debt	Variance
Analysis of net funding (2011-12 prices)			
Net revenue requirement	31,669	26,559	5,110
Less: FIM fee	1,364	1,368	- 4
Less: Rebate	5,134	-	5,134
Net funding	**25,170**	**25,191**	**- 20**
Analysis of allowed return (nominal prices)			
Allowed return	**14,439**	**8,545**	**5,894**
Financing costs			
Interest costs	6,946	6,966	- 21
FIM fee	1,574	1,579	- 5
Accretion	2,705	2,713	- 8
Total finance costs (inc. accretion)	11,225	11,258	- 34
Total finance costs (exc. accretion)	8,520	8,545	- 25
Use of surplus			
Risk buffer	-	-	-
Ring-fenced fund / rebate to government	5,919	-	5,919
Other financial information (nominal prices)			
Closing RAB	68,789	68,751	39
Closing debt	45,104	45,091	13
AICR (CP5 average)	1.69	1.00	0.69
Debt / RAB (CP5 average)	66.2%	66.2%	0.00%

6. In Table D2 below we identify the differences between the ring-fenced approach and the cost of debt approach on the net funding for the DfT and Transport Scotland and Network Rail's debt levels. To show this effect clearly, we have not assumed unsupported debt is issued in both approaches This illustrates that the differences are due to a timing difference between the higher revenue requirement in CP5 under the ring-fenced approach (and lower debt) and the higher revenue requirements that would be needed from CP6 onwards to fund the higher debt levels incurred in CP5 under a rebate approach.

Table D2: Use of surplus cash from cost of capital (ring-fenced fund v rebate)

£m	Ring-fenced fund	Rebate	Variance
Analysis of net funding (2011-12 prices)			
Net revenue requirement	31,091	31,669	- 578
Less: FIM fee	1,274	1,364	- 90
Less: Rebate	-	5,134	- 5,134
Net funding	**29,817**	**25,170**	**4,646**
Analysis of allowed return (nominal prices)			
Allowed return	**13,759**	**14,439**	**- 680**
Financing costs			
Interest costs	6,476	6,946	- 469
FIM fee	1,468	1,574	- 106
Accretion	2,523	2,705	- 182
Total finance costs (inc. accretion)	**10,468**	**11,225**	**- 757**

£m	Ring-fenced fund	Rebate	Variance
Total finance costs (exc. accretion)	7,944	8,520	- 575
Use of surplus			
Risk buffer	-	-	-
Ring-fenced fund / rebate to government	5,815	5,919	- 105
Other financial information (nominal prices)			
Closing RAB	62,660	68,789	- 6,129
Closing debt	39,107	45,104	- 5,997
AICR (CP5 average)	1.73	1.69	0.04
Debt / RAB (CP5 average)	64.3%	66.2%	-1.9%

7. In Table D3 below we identify that the introduction of unsupported debt by itself does not have a significant effect on the net funding for the DfT and Transport Scotland and Network Rail's debt levels in CP5 (before considering the potential higher levels of efficiency). We have illustrated this by modelling the introduction of unsupported debt when the ring-fenced fund approach is being used.

Table D3: Impact of unsupported debt – ring-fenced fund approach

£m	Unsupported debt	No unsupported debt	Variance
Analysis of net funding (2011-12 prices)			
Net revenue requirement	31,226	31,223	3
Less: FIM fee	1,249	1,273	- 23
Less: Rebate	-	-	-
Net funding	**29,976**	**29,950**	**27**
Analysis of allowed return (nominal prices)			
Allowed return	**13,917**	**13,914**	**4**
Financing costs			
Interest costs	6,542	6,467	75
FIM fee	1,438	1,466	- 28
Accretion	2,472	2,520	- 47
Total finance costs (inc. accretion)	**10,453**	**10,453**	**-**
Total finance costs (exc. accretion)	7,980	7,933	47
Use of surplus			
Risk buffer	1,417	1,417	-
Ring-fenced fund / rebate to government	4,520	4,564	- 44
Other financial information (nominal prices)			
Closing RAB	64,028	63,983	45
Closing debt	38,982	38,938	44
AICR (CP5 average)	1.74	1.75	- 0.01
Debt / RAB (CP5 average)	63.4%	63.3%	0.0%

8. In Table D4 below we identify that the introduction of unsupported debt by itself does not have a significant effect on the net funding for the DfT and Transport Scotland and Network Rail's debt levels in CP5 (before considering the potential higher levels of efficiency). We have illustrated this by modelling the introduction of unsupported debt when the rebate approach is being used.

Table D4: Impact of unsupported debt – rebate approach

£m	Unsupported debt	No unsupported debt	Variance
Analysis of net funding (2011-12 prices)			
Net revenue requirement	31,669	31,669	-
Less: FIM fee	1,301	1,346	- 45
Less: Rebate	3,934	4,005	-70
Net funding	**26,434**	**26,318**	**116**
Analysis of allowed return (nominal prices)			
Allowed return	**14,439**	**14,439**	**-**
Financing costs			
Interest costs	6,985	6,849	137
FIM fee	1,499	1,552	- 54
Accretion	2,576	2,668	- 92
Total finance costs (inc. accretion)	**11,059**	**11,068**	**- 9**
Total finance costs (exc. accretion)	8,484	8,401	83
Use of surplus			
Risk buffer	1,417	1,417	-
Ring-fenced fund / rebate to government	4,539	4,622	- 83
Other financial information (nominal prices)			
Closing RAB	68,789	68,789	-
Closing debt	43,649	43,650	- 1
AICR (CP5 average)	1.70	1.72	- 0.02
Debt / RAB (CP5 average)	64.9%	64.9%	0.0%

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