# Periodic review 2008:

# Draft determinations
# Summary

June 2008

OFFICE OF RAIL REGULATION

# Foreword

## Challenges and opportunities

Measured in many ways, Britain's railways have rarely been more successful. Passenger kilometres are greater than at any time since 1946, on a network that is nearly half the size. Freight traffic has also grown strongly since privatisation. Train performance on most parts of the network has improved considerably, with 9 out of 10 passenger trains arriving at their destination on time despite increasing congestion. Safety indicators continue to show steady improvement, with rail being the safest mode of travel in Britain (measured in terms of passenger kilometres). There has been significant investment in the infrastructure and rolling stock. Network Rail has improved the efficiency of operating, maintaining and renewing the network over the last five years by nearly 30%. And rail is an environmentally friendly mode of travel. All this has led to increased levels of passenger and freight customer satisfaction.

But our evidence highlights that there remains significant room for further improvement. These improvements will need to be made if the opportunities and challenges that lie ahead are to be addressed successfully. Passenger and freight traffic are expected to continue to increase significantly and customer expectations in terms of reliability, safety, comfort, and value for money will similarly grow. As passenger demand for weekend travel continues to grow, there are increasing expectations that the railways will be open for business for longer, thereby necessitating different and more efficient ways of managing the infrastructure. And this will need to be achieved alongside continued improvement in worker safety and accommodating the different needs of freight customers. As other transport modes continue to reduce their emissions through the use of new technology, rail will also need to find ways of improving its environmental performance if it is to maintain its relative environmental advantage.

However, as it stands today, and despite the progress made over the last five years, the railway remains too expensive to take full advantage of the opportunities. If they are to be grasped fully, there will need to be significant further improvements in efficiency.

## 2008 periodic review

It is against this backdrop that we have, over the last three years, undertaken our periodic review of Network Rail's outputs and track and station access charges. We have conducted the review transparently and engaged closely with Network Rail and the rest of the industry. We have consulted extensively on all the important issues. We have undertaken detailed and thorough reviews and challenge of Network Rail's plans and carried out further extensive work ourselves to inform our determinations for the next five-year control period – 1 April 2009 to 31 March 2014.

Our draft determinations of Network Rail's outputs and access charges for 2009-14 are part of a balanced package that we have established carefully, based on strong evidence, to ensure that Network Rail improving as it should will be able to finance its activities. We consider that the incentive arrangements and regulatory protections we have established strike the right balance between risk and reward and encourage Network Rail, working with its industry partners, to strive to outperform our determinations, whilst delivering improvements in train performance, safety and capacity. The other parts of the package include: the licence obligations; the monitoring and enforcement of the outputs, the financial framework and the various protections we have established for Network Rail against risks and uncertainties; and the contractual and incentive arrangements. We expect the balanced package set out in our draft determinations to be considered and judged as a whole.

Network Rail has committed to becoming a world-class company through transforming its processes and developing the skills and competencies of its workforce. We strongly support this objective and welcome many of the initiatives that the company has set out in its plans for 2009-14. However the evidence we have collected and the analysis we have undertaken in the periodic review has convinced us that, in order to become world-class, Network Rail must make bigger and faster improvements than it has proposed. Our draft determinations therefore both challenge and incentivise Network Rail to work together effectively with its industry partners in order to respond to the challenges to improve capacity, train performance and safety, whilst driving further improvements in efficiency than it has proposed.

The scale and pace of change required means that Network Rail will need to ensure that it has sufficient capability, including the strength in depth and customer focus of its management. It will need to continue to develop the competencies of its people, manage safely new ways of working, including the introduction and use of new technologies, improve the long-term management of its assets and develop mutually beneficial, sustainable partnerships with its direct customers and suppliers. These improvements are all consistent with Network Rail's own vision of becoming a world-class company.

The key requirements of our draft determinations package, which do provide for all the high level output requirements set down by the Secretary of State for Transport and Scottish Ministers, are as follows.

## Further improvements in train service performance

By March 2014 we require the percentage of passenger trains arriving on time (as measured by the public performance measure, PPM) to be at least 93% for London & South East services, at least 92% for long distance and regional services in England & Wales, and at least 92% in Scotland, thus meeting the specifications set by the governments. Delays caused to freight trains must reduce by more than 25% from current levels. Network Rail will be required to set out and meet, for each train operator, the year by year improvements in train performance to which it is committing, consistent with these high level requirements.

## Providing for growth in passenger and freight demand

Network Rail will need to deliver a range of projects across the network so that it can accommodate passenger demand growth of 22.5% (measured by passenger kilometres) in England & Wales, as well as further growth in Scotland. Further growth in freight of 30% is also forecast. There will be some large-scale projects delivering step changes in capacity and/or passenger experience, for example Thameslink, Reading, and Birmingham New Street, as well as many smaller scale schemes, such as more than 500 longer platforms to accommodate longer trains. The scale of the enhancement programme will be more than twice the level in the current control period. We are providing Network Rail with an incentive to provide extra capacity for growth in passenger and freight traffic above these levels.

## Improvements in safety

Network Rail must comply with its legal safety obligations and we expect to see continuous improvements in the company's safety performance. The Secretary of State has specified a 3% reduction in the risk of death or injury to passengers and rail workers from accidents on the railway for the whole of the British mainline network. Network Rail will need to work together with its partners to deliver the 3% target. Network Rail's ambition to become a world-class company should be a catalyst for it to achieve further significant improvements in its safety performance.

## Reduced levels of disruption to passengers and freight

Network Rail will be required to plan, manage and execute its large engineering programme to ensure that the railway is open for as much of the time as possible and the level of disruption to passengers and freight is reduced. In our determinations we are providing funding for Network Rail to start to implement the 'seven-day railway' concept, which will deliver more radical improvements in network availability. New measures of network availability for passenger and freight services have been developed but we are yet to confirm the precise requirements.

## Ever more efficient

Network Rail will need to deliver all of the above whilst becoming ever more efficient. We have undertaken detailed studies, benchmarking Network Rail's costs and processes against many international railways and other comparable companies. The strong evidence we have collected shows clearly that there remains a very large potential for Network Rail to improve its efficiency. However we do not consider it would be realistic to expect the company to achieve the full potential by 2014. In setting access charges, we have assumed that Network Rail will achieve two thirds of what we consider to be a reasonably cautious view of the current efficiency gap between it and other infrastructure managers. This equates to a 21% reduction in operating, maintenance and renewals expenditure in 2009-14. We consider that for a company aspiring to world-class status this is achievable. Network Rail had proposed 13% savings in its strategic business plan. We also expect the company to make significant increases in the efficiency with which it delivers its enhancement programme.

Our approach recognises that business transformation programmes take time, as well as providing Network Rail with stronger incentives to outperform our assumptions. Providing this strong incentive is in the best interests of customers and funders, who will benefit from outperformance from 2014 onwards.

To enhance the achievement of efficiency in 2009-14, we are introducing a mechanism whereby train operators will share a percentage of Network Rail's cost savings if it outperforms our determinations. This is aimed at encouraging train operators to work with Network Rail to identify and facilitate the achievement of its full efficiency potential faster and further than we have assumed.

## Expenditure, financing and income

In our determinations we have assumed that Network Rail's expenditure over the control period on operating, maintaining, renewing and enhancing the railway network will be £27.8bn. This is £3.4bn (11%) less than the £31.1bn the company proposed.

The allowed rate of return on Network Rail's regulatory asset base (RAB) that we are setting for

2009-14 is 4.7%.[1] The allowed return provides for debt service costs, a fee to government for the guarantee it provides for Network Rail's existing debt, a financial buffer against unanticipated cost or revenue shocks, with the residual amount allocated to a 'ring fenced fund' that can be used in extreme conditions to deal with cost or revenue shocks. We are very pleased to support Network Rail's plans to cap the use of the financial indemnity in the next control period and raise new debt (of around £10bn) which is not supported by the government guarantee. This will enhance the financial discipline on and within the company, as its financial and operational performance will come under much greater scrutiny from ratings agencies and actual and prospective lenders. The cost and availability of finance will be directly linked to the company's performance, thereby creating stronger incentives to operate efficiently. We are satisfied that the benefits of stronger corporate financial incentives outweigh the higher costs of debt unsupported by government.

We have combined our expenditure and financial assumptions using the standard 'building block' approach, where renewals and enhancement expenditure is added to the regulatory asset base and amortised, to estimate Network Rail's total revenue requirement for the control period of £26.5bn. This is £2.6bn (9%) less than the £29.1bn Network Rail asked for. This income is principally recovered through track access charges paid by passenger and freight operators, station access charges, and network grant paid by the governments in England & Wales and Scotland to Network Rail in lieu of access charges.

The efficiencies that we judge Network Rail can achieve will lead to lower track access charges for train operators. Freight train operators will see their total charges fall by 30%, which will have the added advantage of improving their competitive position against other modes of transport.

Our reductions to Network Rail's proposals on its required income have enabled us to conclude that the high level outputs specified by the Secretary of State and Scottish Ministers can be afforded with the public funds that they are making available to support the mainline railways.

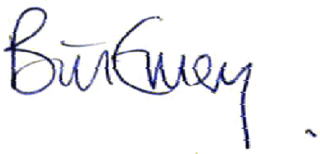
## Delivery

We consider that Network Rail can deliver the improvements in performance and its capital expenditure programme for 2009-14 safely. While the company has made considerable progress in improving its capability the challenges it faces mean that it needs to ensure that it has sufficient capability. We support Network Rail's intention to bring together its many detailed initiatives into an overarching capability development programme with high level leadership.

We will monitor Network Rail's progress in delivering all of its work and the improvements required. If it is failing or appears likely to fail, we will not hesitate to take action to require the company to address its shortcomings. We are consulting on changes to the company's network licence to enhance and clarify its accountability to us.

Our draft determinations represent a positive outcome for passengers, freight customers and taxpayers. Network Rail, working with its industry partners, can and should deliver a better outcome at lower cost. If Network Rail and its partners meet the challenges we are setting down, the railway industry will be in a strong position to meet the longer term needs of its customers and to improve its competitive position against other modes of transport. The outlook for the railway industry is very encouraging. Network Rail must grasp the opportunities it faces.

Your views on these draft determinations are important. We are consulting until 4 September 2008 and would like your views on our proposals before we confirm our final determinations, which we will publish on 30 October 2008.



**Bill Emery**
**chief executive**

**5 June 2008**

[1] In real 'vanilla' terms (combining a pre-tax cost of debt and a post-tax cost of equity).

# Summary

## 2008 periodic review – overview

1. The 2008 periodic review (PR08) is the process whereby we determine the outputs that Network Rail Infrastructure Limited (Network Rail) must deliver, and the levels of access charges paid by train operators for use of its infrastructure, during the five years of control period 4 (CP4), which will run from 1 April 2009 to 31 March 2014.

2. The access charges we are determining in PR08 are the track access charges payable by franchised passenger and open access passenger and freight train operating companies, and the station long term charge payable by users of stations. We are also establishing the level of network grant that the governments in England & Wales and Scotland will pay to Network Rail in lieu of access charges.

3. In this document we set out our draft determinations for the outputs and access charges for consultation. We also explain the judgements we have made on Network Rail's costs and the revenue requirement that underpins the calculations of the access charges and set out the values of the incentive rewards that Network Rail and its industry partners can achieve if they outperform our determinations.

4. Our determinations represent a balanced package that should be considered and judged as a whole. Alongside the outputs and access charges, the other key parts of the package are the obligations of Network Rail's licence, the new financial framework, the contractual and financial incentives, the protections to deal with risk and uncertainty, the structure of charges, and the monitoring and enforcement framework.

5. We expect Network Rail to improve significantly its outputs in CP4. These include continued improvements in safety, train performance and considerable increases in capacity to accommodate 22.5% growth in passenger demand in England & Wales (measured in passenger kilometres), and further passenger demand growth in Scotland. In addition, further growth of 30% in freight traffic is projected by the end of CP4. The company will extend more than 500 platforms to accommodate the approximately 10% increase in vehicles that will be introduced to accommodate the passenger growth.

6. Based on the evidence we have collected and the analysis we have undertaken in PR08 we have established the lowest level of access charges that we consider is reasonable for Network Rail to deliver all the required outputs and ensure that it is not unduly difficult for the company to finance its activities.

7. Network Rail has committed to becoming a world-class company through transforming its processes and developing the skills and competencies of its workforce. We strongly support this objective and welcome many of the initiatives that the company has set out in its plans for CP4. However the evidence we have collected and the analysis we have undertaken in PR08 has convinced us that Network Rail must make bigger and faster improvements than it has proposed.

8. We consider that the outputs can be delivered at significantly lower cost than Network Rail has projected and we have factored challenging, but achievable, assumptions for efficiency improvement into our calculations of access charges. The judgements we have made on the scope for efficiency improvement in CP4 should not lead the company to compromise health and safety or create risks that are not capable of being managed. Indeed, in our view, there is no conflict between safety and efficiency, and a world-class company will deliver high performance in all areas of its operations.

9. The efficiency improvements we have factored into our calculations of access charges provide the opportunity for Network Rail, working with its industry partners, to outperform our assumptions. If they do they will benefit financially and reputationally. The lower levels of expenditure will translate into lower access charges in the following control period.

10. As part of PR08, we have strengthened the incentives acting on Network Rail and its partners, which should encourage them to strive to outperform our determinations. The most important change to the financial incentives on Network Rail is the capping of the financial indemnity that government provides Network Rail (guaranteeing all of its debts). We support Network Rail's proposals to raise all new debt without the government guarantee. We have confirmed that, in our view, this represents value for money, and consider that it should generate an additional spur on the company to reduce costs, due to the increased scrutiny that this will bring from ratings agencies and actual and prospective lenders to Network Rail and the need for Network Rail to maintain a strong investment grade credit rating if it is to raise the volume of debt required in CP4.

11. We consider that our draft determinations should allow our overarching objective for PR08 to be achieved in CP4, namely to ensure an outcome that secures value for money for users and taxpayers, by determining the level of Network Rail's access charges and outputs in a way that balances the interests of all parties. In terms of outcomes from the railway, if this objective is achieved then it should deliver a railway that is safer than ever before, is more reliable than ever before, whilst carrying significantly more passengers and freight, at a cost that represents ever better value for money for users and taxpayers.

## Background and approach

12. The legal procedure for conducting an access charges review is set out in schedule 4A to the Railways Act 1993. The central element of the process is that the Secretary of State for Transport and Scottish Ministers have separately to provide us with information about what they want to be achieved by railway activities during the control period and the public financial resources that are, or are likely to be, available for the achievement of those activities. They did this by producing 'high-level output specifications' (HLOSs), setting out what they want to be achieved, and 'statements on the public financial resources available' (SoFAs), which they submitted to us in July 2007.[2]

13. We have taken account of the HLOSs and SOFAs in making our determinations. We have also taken account of the reasonable requirements of all of Network Rail's customers and other funders, including open access passenger and freight train operators, to the extent these are not covered by the government specifications.

14. Our determinations are the result of nearly three years work since we started PR08 in August 2005 when we published our initial consultation document. There has been a significant amount of work undertaken across the industry over this time, involving a lot of detailed analysis and debate. From the start of the review we committed to conducting it transparently, exposing the issues and consulting on and explaining all of our key decisions. We are grateful for all the contributions made by stakeholders throughout PR08.

15. We set out many of the general principles of the framework we use to set outputs and access charges in our advice to ministers and framework for setting access charges in February 2007, with further principles confirmed in our update on the framework for setting outputs and access charges in February 2008.

16. Our determination of the revenue that we consider Network Rail needs to run its business follows the standard 'building block' approach used by economic regulators, with a key feature being that renewals and enhancement expenditure is added to the regulatory asset base (RAB) and remunerated through the amortisation allowance and an allowed return on the RAB.

17. This revenue is recovered by track and station access charges, grants paid directly to Network Rail by government (in lieu of access charges) and income received from other sources (such as property rental). Whilst Network Rail is a GB-wide company, and finances itself on this basis we have established separate calculations for England & Wales and Scotland, in the context of the separate responsibilities that the Secretary of State and Scottish Ministers have for setting the strategy for, and funding, the railways.

18. Whilst we have made our determinations based on our assessment of the overall level of efficient expenditure we consider the company needs to undertake in CP4, we do not decide the detailed level, or pattern, of expenditure or activity that Network Rail may ultimately need to undertake to deliver the required outputs. It is for the company to define and deliver its work programme consistent with its asset policies, actual asset condition, requirements of the network, and its licence, legal and contractual obligations.

## Network Rail's progress and CP4 challenges and opportunities

19. When Network Rail took over ownership of the rail infrastructure in 2002 from Railtrack (in administration), it faced a network where costs had spiralled and delays were far above the levels of a few years before. Since then the company has achieved a great deal in rectifying the problems it inherited. It has made good progress in improving performance, understanding better its assets and getting costs under control.

20. Looking ahead, the needs of the railway and its users present a fresh set of challenges. Further progress to reduce costs and improve performance towards 'world class' levels must accompany delivery of a major programme of enhancements to increase capacity, using less intrusive means of carrying out engineering work to progress towards a 'seven day railway', and increasing responsiveness to the needs of its customers.

[2] The HLOS published by the DfT may be accessed at http://www.dft.gov.uk/about/strategy/whitepapers/whitepapercm7176/ and the HLOS published by Transport Scotland may be accessed at http://www.transportscotland.gov.uk/files/documents/rail/HLOS-July-2007.pdf.

21. We consider that all this is achievable but it will require Network Rail to strengthen its management, to develop the skills and competencies of its people, to manage safely new ways of working, including the use of new technologies, to improve the long term management of its assets and to develop mutually beneficial and sustainable relationships with its customers and suppliers.

## Network Rail's strategic business plan

22. At the end of October 2007 Network Rail published its strategic business plan (SBP), which was the company's principal submission to us in PR08. The SBP contains Network Rail's costed proposals for operating, maintaining, renewing and enhancing the rail infrastructure in CP4, along with assumptions on the financial framework. Network Rail has produced the SBP in conjunction with its industry partners and it has made assumptions about the respective contributions of Network Rail and franchised train operators to delivering the requirements of the two HLOSs, as well as the reasonable requirements of all of its customers and funders. Following our initial review of the SBP, and response to the company, Network Rail published an update of its SBP at the beginning of April 2008. The SBP and the update have provided the basis for our review and challenge of the company's plans to underpin our determinations.

## Outputs

23. A core part of PR08 has involved reviewing and improving the scope and definition of the outputs Network Rail needs to deliver. In CP4 we require an increased level of disaggregation of outputs across the network in order to strengthen Network Rail's accountability to its customers.

24. In CP4 Network Rail's output obligations will include:

- top-level regulated output obligations which are specified in this determination; and
- disaggregated output obligations which will be fully defined in Network Rail's CP4 delivery plan, and secured through their status as being reasonable requirements. Some of these are already firm but others will need to be worked up by Network Rail and its stakeholders over the course of 2008.

25. The outputs we have established for CP4 are summarised in table 1.

**Table 1: Summary of CP4 outputs**

| Output | Description |
|---|---|
| Safety | Network Rail must continue to meet its health and safety obligations. In addition, the Secretary of State for Transport has specified a 3% reduction in the risk of death or injury to passengers and rail workers from accidents on the railway for the whole of the British mainline network to be achieved between 2008-09 and 2013-14. Network Rail will need to work together with its partners to deliver the 3% target. |
| Train service performance | We expect Network Rail to deliver, by 2013-14, the improvements in the public performance measure (PPM) and the reductions in significant lateness by sector as set out in the HLOS for England & Wales; and PPM as set out in the HLOS for Scotland. We are setting trajectories for each year of CP4 for these measures.<br>We are also setting maximum levels, for each year, for the number of passenger train delay minutes for which Network Rail is held responsible in England & Wales and in Scotland.<br>We are setting similar maxima for the freight train delay minutes for which Network Rail is held accountable across the network as a whole (normalised for the volume of freight traffic).<br>Further detail is provided in tables 2 - 4 |
| Capacity | We expect Network Rail to deliver projects specified in the HLOSs for both England & Wales, and Scotland. We also expect it to deliver other projects which will provide the infrastructure required to meet the disaggregated England & Wales capacity specifications. |
| Network capability | Baseline network capability will be as defined at 1 April 2009. |
| Station condition | The average condition of each category of station should at least be maintained (before taking into account improvements funded through the national stations improvement programme (NSIP)). |
| Network availability | We expect Network Rail to meet targets for limiting the disruption it causes to passenger and freight services as a result of engineering works, including specific improvements to reflect the benefits of full delivery of the seven-day railway concept on priority routes. |
| Customer satisfaction | Following the decision by Network Rail to include customer satisfaction in its management incentive plan, we will not set a regulated target in this area. |

26. The required trajectories for train service performance are shown in tables 2 – 4. These all have the status of top-level regulated outputs. The CP4 targets required by the HLOSs are in shaded cells in **bold**.

**Table 2: Public performance measure for passenger operators (moving annual average)**

| | 2008-09 (%) | CP4 | | | | |
|---|---|---|---|---|---|---|
| | | 2009-10 (%) | 2010-11 (%) | 2011-12 (%) | 2012-13 (%) | 2013-14 (%) |
| **England & Wales (by sector)** | | | | | | |
| Long distance | 87.6 | 88.6 | 89.8 | 90.9 | 91.5 | **92.0** |
| London & South East | 91.2 | 91.5 | 92.0 | 92.4 | 92.7 | **93.0** |
| Regional | 90.1 | 90.5 | 91.0 | 91.5 | 91.9 | **92.0** |
| Total | 90.6 | 91.0 | 91.5 | 92.0 | 92.3 | 92.6 |
| **Scotland** | | | | | | |
| First ScotRail | 90.6 | 90.9 | 91.3 | 91.7 | 91.9 | **92.0** |

**Table 3: Significant lateness and cancellations (England & Wales only)**

| | % of services affected | | | | | | Improvement from 2006-07 (%) |
|---|---|---|---|---|---|---|---|
| | 2008-09 | CP4 | | | | | |
| | | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | |
| Long distance | 5.3 | 4.9 | 4.5 | 4.2 | 4.0 | 3.8 | **36.0** |
| London & South East | 2.3 | 2.3 | 2.2 | 2.1 | 2.0 | 2.0 | **21.0** |
| Regional | 2.7 | 2.6 | 2.5 | 2.4 | 2.3 | 2.2 | **27.0** |

**Table 4: Network Rail delay minutes for passenger and freight services**

| | 2008-09 | CP4 | | | | |
|---|---|---|---|---|---|---|
| | | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
| **Passenger services (maximum delay minutes)** | | | | | | |
| England & Wales | 6,500,000 | 6,270,000 | 5,790,000 | 5,430,000 | 5,190,000 | 4,980,000 |
| Scotland (First ScotRail) | 455,000 | 436,000 | 410,000 | 391,000 | 386,000 | 382,000 |
| **Freight services (delay minutes per 100 train km)** | | | | | | |
| Total | 3.92 | 3.68 | 3.41 | 3.18 | 3.05 | 2.94 |

# Efficient expenditure

27. We have collected a wide range of evidence and carried out a thorough and detailed assessment of Network Rail's proposals for its operating, maintenance, renewals and enhancement expenditure to inform our assessment of the level of activity we consider Network Rail needs to undertake and the scope for efficiency improvement.

*Maintenance and renewals*

28. We have assessed Network Rail's projections for CP4 of £12.8bn for renewals and £4.9bn for maintenance (before adjustment for efficiency improvement). This proposed expenditure covers the upkeep through day-to-day maintenance and renewals of the network's physical infrastructure. We have reviewed the justification for the activity levels that drive this expenditure, including:

- assessing each of the policies by which the assets will be managed;
- understanding how the activity levels and the planned outputs are linked, including the extent to which Network Rail has made the case for increased expenditure where it

argues that existing levels are insufficient to sustain the network in the long term;

- considering the deliverability of the planned activity volumes; and
- conducting 'on-the-ground' sampling of certain activities planned for the early part of CP4 to test whether or not the decision making processes appear to be generating robust work plans that are clearly driven by the asset policies.

29. Our views on the robustness of the activity levels Network Rail proposed in its SBP fall into four broad categories:

- track, signalling, telecoms and plant & machinery renewals (representing in total 63% of total renewals expenditure): Network Rail's asset policies are clear and its modelling of CP4 renewals activities is relatively robust. The proposed activity levels are in line with the current level of activity. In some cases we have made relatively minor volume adjustments based upon evidence that there is a small degree of over-scoping of renewal plans;
- electrification and operational property (together representing 18% of total renewals expenditure): The asset policies are also clear and we consider that the renewals volumes have been well modelled, but the proposed CP4 volumes are significantly higher than current activity levels. We have made relatively minor adjustments to volumes in these areas, although Network Rail made a major reduction in proposed operational property expenditure between the SBP and its updated following our questioning of the original figures;
- civil engineering expenditure plans (representing 15% of total renewals expenditure): Network Rail has proposed significant increases in renewals activity but has failed to substantiate its case. We have therefore adopted substantially lower figures which in most cases represent activity at the level being delivered in the final part of CP3;[3] and
- maintenance activity levels: we consider that, for all asset categories, Network Rail's proposals are reasonable.

30. The result of our assessment is that we have reduced the provision for total CP4 renewals from £12.8bn (in the SBP update) to £11.9bn (7%) before the application of efficiency.

*Operating expenditure*

31. Network Rail has proposed controllable opex of £3.8bn and non-controllable opex of £1.8bn in CP4. We have largely accepted Network Rail's projections for non-controllable opex. On controllable opex, the main area of our adjustment comes through our efficiency adjustments discussed further below. We also consider that expenditure on insurance can be lower than Network Rail has proposed.

*Operating, maintenance and renewals efficiency*

32. Across OM&R, Network Rail has proposed efficiency improvements in CP4 of 17.6% before adjustment for increase in the prices of its labour and material inputs above general inflation. After adjusting for input prices, its proposed overall CP4 efficiencies are 14% for maintenance and renewals and 7% for operating expenditure.

33. We have reviewed Network Rail's proposed efficiency initiatives for CP4 and we have undertaken a considerable amount of further work to assess the scope for efficiency improvement. We have considered very carefully the results from all the evidence available to us in order to inform our determinations.

34. Whilst we acknowledge the transparent approach that Network Rail has undertaken to develop its proposals for CP4, ultimately we consider that the company significantly understates the scope for efficiency improvement.

35. Besides our review of Network Rail's plans, key work we have undertaken to inform our judgements is:

    - maintenance and renewals: working with Network Rail, we have conducted econometric analysis of the International Union of Railways (UIC) 'lasting infrastructure cost benchmarking' (LICB) dataset, which comprises M&R expenditure and other data for 13 European rail infrastructure managers, including Network Rail, for the eleven years to 2006. This analysis has generated robust results that show, re-based to the end of CP3, Network Rail is around 35% less efficient in maintenance and renewals compared to the upper quartile of the other infrastructure managers. We have undertaken further engineering based work to understand this efficiency gap, including a range of visits to rail infrastructure managers in other countries, and assessment of technologies and working methods used elsewhere in Europe that could be implemented by Network Rail to improve efficiency; and

[3] Control period 3 runs from 1 April 2004 to 31 March 2009.

- operating expenditure: Oxera has conducted a study for us on the scope for efficiency improvements in Network Rail's operating expenditure, by looking at efficiency performance in other regulated utilities. Considering the results of this work in the light of our own assessment of trends in rail operating expenditure and other detailed work on opex efficiency also shows a gap of around 35% at the end of CP3.

*The rate of improvement in OM&R efficiency in CP4*

36. In making our judgements on efficiency we have considered the amount of improvement that Network Rail can make in CP4 and the speed at which it should be able to achieve this, as a core part of our overall package. We recognise the many and varied challenges that the company faces in CP4 and the improvements it will need to make in train performance, safety and capacity, as well as in making further cost savings. To this end, we have decided to profile further significant efficiency improvements over ten years. We recognise that many of the further cost savings that the company needs to make to address the full efficiency gap it faces may necessitate fundamental change to the way the company operates and implementation of new technologies and working methods. Given the circumstances Network Rail faces in CP4 it is right to give it sufficient time to achieve this.

37. We have considered the profile of efficiency improvement over this time horizon. We have examined the rate of change that other regulated industries have achieved and have considered some of the specific changes Network Rail could make to reduce its costs during CP4. We have taken into account Network Rail's own aspirations to achieve world-class status. Consequently, we consider that Network Rail should be able to catch-up two thirds of the efficiency gap during CP4 (23% in OM&R) with the remaining third in CP5 (though we would expect to review the scope for further efficiency improvement in CP5 in more detail at the next periodic review).

38. In order to determine the overall level of efficiency improvement in CP4 we have also taken into account the expected ongoing productivity improvements ('frontier-shift') that even the best performing companies would be expected to achieve, above that reflected in general inflation. Across OM&R we consider that this frontier-shift is 3% in CP4 as a whole.

39. We have also made allowance for real increases in Network Rail's input prices above general inflation. We have done this through making direct adjustments to our efficiency assumptions based on the study Network Rail undertook. We carefully reviewed Network Rail's submission and although we have some specific concerns, taken as a whole it is reasonable. We will reduce our 'gross' efficiency assumptions by 4% for maintenance and renewals, and 8% for controllable opex.

40. Overall, taking into account catch-up of the efficiency gap, frontier-shift and input prices, we consider that Network Rail should be able to make efficiency improvements in CP4 of 5% per annum for maintenance and renewals, and 3.5% per annum for controllable opex. In cumulative terms, this gives overall efficiency improvements by the end of CP4 of 23% for maintenance and renewals, and 16% for controllable opex.

*Enhancement expenditure*

41. Network Rail's SBP update proposes some £9bn of enhancement expenditure in CP4 to be funded through our periodic review. This work is a response to the requirements of the two HLOSs, other customer and funder reasonable requirement and the demand for a growing and sustainable railway. The expenditure is split between:

    - England & Wales: expenditure of £8.6bn in CP4 to deliver the HLOS, including schemes ranging from more than 500 platform extensions to deliver the capacity specification, investment to deliver the performance specification, specific major projects (Birmingham New Street, Reading, Thameslink) and other investment, including work to take forward implementation of the seven day railway concept; and
    - Scotland: expenditure of £448m on projects specified by Transport Scotland in its HLOS (Airdrie to Bathgate and the Glasgow Airport Rail Link) and development funding for further enhancement schemes.

42. We have undertaken a detailed review of Network Rail's enhancement proposals. In doing this we have examined both the scope of the projects Network Rail has proposed and the efficiency of the work.

43. We reviewed Network Rail's proposals to deliver the capacity and performance specifications in the England & Wales HLOS. Many of the proposals to increase capacity are at an early stage of development. We have concluded that while Network Rail's proposals were generally appropriate and reasonable they can be delivered at a lower cost. For the HLOS performance specification Network Rail made a case for additional funding to deliver the specification. We consider that the need was smaller than Network Rail has proposed. We have included a provision for capital expenditure of £160m for Network Rail to take forward implementation of the seven-day railway concept to provide for greater levels of network availability for passengers and freight.

44. On the DfT projects specified in the HLOS with capped funding for the major named schemes (Birmingham New Street, Reading, Thameslink) we have provided for the same funding as proposed in the HLOS which we found to be reasonable given the scope of the work.

45. We have agreed a structure for delivery of the national stations improvement programme, a ring-fenced fund to provide station improvements up to the value of £156m in CP4.

46. Network Rail has set out initial proposals for development of the strategic freight network (SFN). We have reviewed the company's proposals and we require it to develop more detailed plans with the industry, up to a maximum of £208m in CP4.

47. In Scotland, we have approved funding for Airdrie to Bathgate at a broadly similar level to that proposed by Network Rail, although we consider that Glasgow Airport rail link could be delivered at a lower cost than proposed by Network Rail.

48. Overall we consider that the enhancement programme funded through PR08 can be delivered for £7.5bn, 17% less than Network Rail has proposed.

49. Achieving the benefits of this programme also relies on government and train operators agreeing on new train orders, and a complex set of cascades of existing rolling stock around the country. The new trains have to be built and industry accepted procedures followed. The whole industry will have a role to play.

## Network Rail's ability to deliver the CP4 capital programme

50. In CP4, Network Rail faces a major challenge to deliver the enhancement programme, which is three times as large as in CP3, as well as carrying out its core asset renewals work. The company considers it can deliver its work programme.

51. While Network Rail has made considerable progress in improving its capabilities (including the skills and competencies of its people and the processes it uses to make decisions and progress capital expenditure) it recognises that it needs to develop these further to underpin delivery its CP4 programme. We support Network Rail's intention to bring together its many detailed initiatives into an overarching capability development programme with high-level leadership and resourcing.

52. We will be monitoring closely the progress of its enhancement projects through the stages of scheme development, because slow project development risks delaying the programme.

## Safety management

53. We have sought to ensure that our overall package of determinations will challenge and incentivise Network Rail to become more efficient in running its business, whilst continuing to meet its health and safety obligations.

54. We have examined Network Rail's plan to deliver health and safety in CP4. In particular we looked at how Network Rail has identified any changes in risk arising from the organisational and operational changes it needs to make to deliver its outputs and its plans for managing these changes in risk.

55. We consider that Network Rail should be able to deliver its required outputs in CP4 in compliance with its statutory obligations under the Health and Safety at Work Act 1974 and associated legislation. However, delivery of the determinations presents challenges for Network Rail, particularly in light of the changes in efficiency, capacity and performance being asked of the railway during CP4. These will require Network Rail to undertake a number of major, and in some cases novel, initiatives. This will require rigorous risk assessment and management by Network Rail. We will build into our inspection plans for CP4 actions that will enable us adequately to inspect those areas of change where consider the risks of safe delivery by Network Rail are highest. Through this inspection activity we will be able to identify any weaknesses in Network Rail's actions and, if weaknesses are found, take action.

56. We have assessed the industry's plans to meet the HLOS safety metric in CP4, specified by the Secretary of State for GB as whole, of a 3% reduction in the risk of death or injury to passengers and rail workers. We consider that the specfication can be achieved.

## Efficient expenditure in CP4

57. Taking into account our assessment of Network Rail's SBP and SBP update, our judgements on efficiency, and our assessments of deliverability and safety management, table 5 summarises our assumptions on the level of expenditure that we consider Network Rail needs to undertake in CP4 in order to deliver its required outputs. Overall we consider that Network Rail overstated its requirements in its plans, and can achieve its outputs through expenditure of £27.8bn, around £3.4bn (or 11%) less than it proposed in its plan.

**Table 5: Summary of our CP4 efficient expenditure assumptions**

| £m (2006-07 prices) | Network Rail's SBP/SBP update | Our determination | Difference |
|---|---|---|---|
| Controllable opex | 3,776 | 3,392 | (10%) |
| Non-controllable opex | 1,796 | 1,776 | (1%) |
| Maintenance | 4,889 | 4,584 | (6%) |
| Renewals | 11,658 | 10,504 | (10%) |
| Enhancements | 9,029 | 7,507 | (17%) |
| **Total** | **31,148** | **27,763** | **(11%)** |

## Financial and risk framework

58. We are making a number of improvements to the financial framework for CP4, which:

- will allow Network Rail to finance its activities;
- provide incentives to the company to control costs and outperform our determinations; and
- provide protections to the company to deal with risk and uncertainty.

*Unsupported debt*

59. We support Network Rail's intention that the use of the financial indemnity (guarantee) the government provides to Network Rail of all its debt will be restricted from the start of CP4 so that it can only be used to refinance existing debt. This means that Network Rail will need to raise debt on an unsupported basis for the first time from early in CP4. This will increase scrutiny from ratings agencies and actual and prospective lenders to Network Rail and hence improve the financial disciplines bearing on the company. Network Rail will need to maintain a strong investment grade credit rating in order to raise about £10bn of new debt in CP4.

60. Those financial institutions lending to Network Rail without the benefit of a government guarantee will have their capital at risk. Government has been clear that, in the unlikely event that Network Rail did face severe financial difficulties, the assumption that lenders of unsupported debt should be making is that government will not rescue those lenders to protect its own position in relation to the supported debt.

61. Network Rail will be required to pay to DfT, as provider of the financial indemnity, a fee that reflects the value of the credit quality enhancement received as a result of the guarantee. We have set the level for the fee for the guaranteed debt at 0.8% per annum, which provides for payment to government of £880m (in nominal terms) over CP4.

*Allowed return*

62. We will provide Network Rail with an allowed return that reflects its risk adjusted cost of capital. Based on a recent study conducted for us by CEPA, which takes into account the recent changes in credit market conditions, we consider the appropriate cost of capital (in real 'vanilla' terms) for Network Rail to be 4.7%.[4]

63. Part of the allowed return will be required to meet Network Rail's financing costs (including the financial indemnity fee). The remainder will be split between a risk buffer and a ring-fenced investment fund.

*Managing risk and uncertainty*

64. Inevitably, in determining outputs and access charges for the five years of CP4, there are uncertainties and risks that Network Rail's actual costs of delivering the required outputs (or revenues it will earn) will be different to those we have assumed in our determinations.

65. We have taken account of these risks and uncertainties in establishing the overall package for CP4. We have ensured an appropriate allocation of risks that we expect Network Rail and its customers and funders to bear. Key elements of the package are:

- as part of the allowed return, the risk buffer, of £1bn over CP4, enables Network Rail to manage business risk and 'normal' fluctuations in cash flow. To the extent that Network Rail does not need it for these reasons it will have discretion over its use;
- the ring-fenced investment fund, of around £1.3bn over CP4, will be used to deliver capital expenditure that is required to deliver the HLOSs, except in cases of significant underperformance by Network Rail. Under defined circumstances, Network Rail will have full discretion to defer capital expenditure up to the value of £1.3bn (and hence outputs) to relieve financial pressures.
- our approach to rolling forward the RAB will be based on adding actual efficient capex to the RAB. This means that if Network Rail spends more than assumed in our determinations that this expenditure would be logged-up and added to the RAB at the

4 A 'vanilla' return combines a pre-tax cost of debt and a post-tax cost of equity.

start of CP5 if the additional expenditure is justified and incurred efficiently;

- we have made specific allowances in the funding of the enhancement programme to provide for particular risks over and above those covered by the general risk buffer, and the Thameslink project (the largest enhancement scheme, with estimated expenditure of £2.7bn in CP4) is subject to a specific protocol between Network Rail and government, which we have approved, that insulates Network Rail from major cost shocks; and
- Network Rail's access charges and the network grant payments will be rebased by the retail price index (RPI) each year. This protects the company against general inflation risk.

66. Ultimately if the various protection measures are exhausted and the company breaches a key financial trigger (a value of 1.35x on average over a three year period for the adjusted interest cover ratio (AICR)) then there is the option for us to undertake an interim review of Network Rail's outputs and access charges. This means that Network Rail's customers and funders bear the risks of changes to access charges and/or outputs as a result of this.

*Amortisation*

67. We have set the amortisation allowance based on long-run steady-state renewals expenditure (with a further small addition to amortise the non-capex additions we are making to the RAB at the start of CP4). Our overall amortisation allowance for CP4 is £7.2bn, £1.5bn less than that which Network Rail assumed in its SBP update, where Network Rail just adopted the upper bound of the possible range for amortisation that we previously published.

## Revenue requirement

68. Based on our assessment of efficient expenditure, and the parameters we have established for the financial framework, table 6 shows our determination of the revenue requirement that Network Rail needs in CP4. We consider that Network Rail has overstated its revenue requirement for CP4 and that the company requires £2.7bn (9%) less than the £29.1bn that it set out in its SBP update.

**Table 6: Our determination of Network Rail's CP4 revenue requirement (Great Britain)**

| £m (2006-07 prices) | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Total | SBP update |
|---|---|---|---|---|---|---|---|
| Maintenance | 1,020 | 961 | 910 | 868 | 825 | 4,584 | 4,989 |
| Controllable opex | 728 | 702 | 678 | 654 | 631 | 3,392 | 3,777 |
| Non-controllable opex | 328 | 349 | 360 | 367 | 372 | 1,776 | 1,796 |
| Schedule 4 and 8 | 212 | 196 | 192 | 164 | 159 | 924 | 927 |
| Allowed return | 1,532 | 1,650 | 1,748 | 1,821 | 1,881 | 8,633 | 8,856 |
| Amortisation | 1,446 | 1,446 | 1,446 | 1,446 | 1,446 | 7,230 | 8,690 |
| Tax | - | - | - | - | - | - | 85 |
| **Gross revenue requirement** | **5,267** | **5,304** | **5,334** | **5,320** | **5,314** | **26,539** | **29,119** |

## Contractual and financial incentives

69. An important part of PR08 has been the review of the incentives that Network Rail and the industry face to work together and improve whole industry outcomes.

70. We are implementing an efficiency benefit-sharing mechanism between Network Rail and train operators, on the basis of the proposals made by the industry to us. If Network Rail can deliver all of its outputs and obligations for less than we have determined then it will share 25% of this 'outperformance' with train operators, initially at the national level (separately for England & Wales and Scotland). The payments will be divided between operators on the basis of their relative share of variable usage charge payments and will be made following our annual assessment of Network Rail's performance. We will review the mechanism after two years.

71. We are retaining a volume incentive in CP4, to incentivise Network Rail to respond to demand levels greater than those assumed in the SBP (based on the HLOSs).

72. We have also implemented a rolling capex incentive mechanism, to equalise the incentive that Network Rail has to make efficiency savings, across each year of the control period.

73. Following cross-industry working we are making improvements to the schedule 4 and 8 possessions and performance regimes, including updated values to provide correct price signals to Network Rail and train operators.

## HLOS affordability

74. We have examined the whole industry costs to the two governments of delivering the HLOSs, which includes franchise support as well as the revenue required by Network Rail (less income from third parties, such as open access passenger and freight operators and property rental). We have carried out these assessments so that we could establish whether the SoFAs of each government are adequate to secure the achievement of the HLOSs.

75. Tables 7 and 8 summarise our assessment of the affordability calculations.

76. Both HLOSs are affordable (i.e. the SoFAs are adequate). The England & Wales HLOS shows surpluses in each year, with £1.3bn surplus over CP4 as a whole.

77. The Scottish HLOS is affordable over CP4 as a whole (with £80m surplus) but there are deficits in the final three years of CP4, though this does not alter our decision that the Scottish HLOS is affordable. We will discuss with Transport Scotland and Network Rail the possible profiling of Network Rail's revenue requirement for Scotland and/or other calls on the SoFA.

78. The England & Wales SoFA was defined in nominal terms based on an inflation (RPI) forecast of 2.75% per annum. We have converted the SoFA into 2006-07 prices using this forecast. We have developed our own RPI forecast which is higher, based on more up-to-date economic forecasts. We have also tested the affordability of this HLOS against our RPI forecast and it remains affordable though the surplus reduces to £0.8bn over CP4. The Scottish SoFA was stated in real terms.

**Table 7: Results of the HLOS affordability calculation for CP4 – England & Wales**

| £m (2006-07 prices) | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Total |
|---|---|---|---|---|---|---|
| SoFA | **2,888** | **2,700** | **2,706** | **2,567** | **2,444** | **13,302** |
| Less franchise support payments* | (1,496) | (1,259) | (988) | (755) | (473) | (4,971) |
| Add back franchise payments to Network Rail (as assumed in the SoFA) | 2,863 | 2,879 | 2,887 | 2,890 | 2,895 | 14,414 |
| **Funds available for Network Rail** | **4,256** | **4,320** | **4,605** | **4,703** | **4,866** | **22,749** |
| Less Network Rail revenue requirement (net income from sources other than franchised train operator access charges or network grant) | 4,248 | 4,296 | 4,318 | 4,318 | 4,312 | 21,492 |
| **Surplus/(deficit)** | **8** | **24** | **286** | **385** | **554** | **1,257** |

* Includes our estimate of additional depots costs (which is assumed to be capitalised) and rolling stock.

**Table 8: Results of the affordability calculation for CP4 – Scotland**

| £m (2006-07 prices) | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Total |
|---|---|---|---|---|---|---|
| SoFA | 759 | 826 | 676 | 668 | 673 | 3,600 |
| Less franchise support payments | (321) | (331) | (359) | (360) | (367) | (1,738) |
| Add back franchise payments to Network Rail (as assumed in the SoFA) | 150 | 150 | 150 | 150 | 150 | 750 |
| **Funds available for Network Rail** | **588** | **645** | **467** | **458** | **456** | **2,612** |
| Less Network Rail revenue requirement (net income from sources other than franchised train operator access charges or network grant) | 500 | 508 | 511 | 510 | 505 | 2,534 |
| **Surplus/(deficit)** | **87** | **137** | **(44)** | **(52)** | **(49)** | **78** |

## Access charges and network grant

79. Network Rail recovers its revenue requirement through track access charges paid by franchised passenger and open access passenger and freight operating companies, station access charges paid by station users, network grant paid by government (in lieu of track access charges) and other sources of income.

80. We will allow continuation of network grants in CP4 as part of the funding mix with access charges, with the level of grants being fixed for the duration of CP4 and established by reference to government accounting rules.

81. We are largely retaining the existing structure of charges but changing the levels. We are not implementing any route or geographical based charges in CP4. We have reviewed Network Rail's proposals for the various individual access charges. In particular, the level of all the variable usage charges paid by passenger train operators will reduce overall by around 35% (excluding the impact of growth) due to improved calculation of variable usage costs and the effect of our efficiency assumption. As we have set out previously in PR08, we are establishing a new charge for certain traffic on freight only lines.

82. Excluding the impact of growth, but including the effect of the new charge for coal for the electricity generation and spent nuclear fuel traffic, overall charges in CP4 for freight operators will fall by around 35% compared to current levels.

83. Table 9 shows the sources of income in CP4 (at Great Britain level) to recover the gross revenue requirement.

## Monitoring and enforcement

84. The continuing development and maturing both of the privatised rail industry and of Network Rail as an organisation would itself call for us to review our approach to monitoring as we approach a new control period. This need is made greater by the significant change in the nature of the obligations Network Rail is being asked to take on. Alongside further improvements which will take safety and performance to their highest levels on record there will be a major programme of enhancement works to increase network capacity and capability.

85. Our monitoring will focus primarily on the following issues:

- whether the industry is on course to deliver the HLOS safety requirement;
- whether the top level regulated outputs are being delivered;
- whether the programme of works to deliver the capacity specifications of the two HLOSs is on course to deliver the required outputs;
- whether Network Rail is managing its assets in line with the policies and activity programmes on which this determination is based;
- whether Network Rail is achieving the expected efficiencies in operating, maintenance, renewal and enhancement; and
- whether Network Rail is operating within the financial boundaries set by our determination.

**Table 9: Sources of Network Rail's income in CP4 (Great Britain)**

| £m (2006-07 prices) | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Total |
|---|---|---|---|---|---|---|
| Franchised passenger train operators – total variable charges | 405 | 410 | 420 | 427 | 432 | 2,095 |
| Franchised passenger train operators – fixed charges | 643 | 681 | 677 | 941 | 1,146 | 4,088 |
| Income from freight operators | 66 | 69 | 70 | 72 | 74 | 350 |
| Income from open access operators | 19 | 19 | 19 | 19 | 19 | 94 |
| Station long term charge income | 134 | 129 | 125 | 121 | 119 | 629 |
| Schedule 4 and 8 income | 212 | 196 | 192 | 164 | 159 | 924 |
| Other income (inc property rental, property sales and depots income) | 391 | 386 | 393 | 412 | 416 | 1,999 |
| Network grant | 3,396 | 3,414 | 3,437 | 3,164 | 2,949 | 16,360 |
| **Total income** | **5,267** | **5,304** | **5,334** | **5,320** | **5,314** | **26,539** |

Rounded to the nearest million.

86. We will carry out a certain amount of monitoring of delivery of other local (disaggregated) customer reasonable requirements (CRRs) but this will not extend to every CRR defined by the CP4 delivery plan. We will expect operators and other stakeholders to draw matters to our notice if they wish them to receive regulatory attention.

87. If Network Rail is failing, or is likely to fail, to meet one or more of its obligations derived from this determination we will consider whether to take enforcement action.

88. We will continue to publish full assessments of Network Rail's performance annually, and shorter focussed assessments in the Network Rail Monitor. We will review the form and content of both publications from time to time to ensure that they are achieving our objective of communicating these matters effectively.

## Early start

89. The early start programme provides early decisions, ahead of our final determinations, on funding for schemes that Network Rail would like to progress in the first year of CP4, to ensure that there is no hiatus in developing the scheme.

90. We are confirming approval of further schemes for the early start programme, following our approval of certain schemes in February 2008. We confirm the Reading, Birmingham New Street, Kings Cross, Bletchley to Milton Keynes and the North London Line can proceed under the early start programme. We are not accepting the South-West mainline 10-car or the Network Rail Discretionary Fund schemes for early start.

## Consultation

91. Following consideration of responses to our proposals in this document we will publish our final determinations on outputs and the overall level of access charges on 30 October 2008. The final audited levels of the detailed individual access charges and associated price lists on 18 December 2008.