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Office of Rail Regulation

Assessing the Efficiency Component of Network Rail's Strategic Business Plan

29 February 2008

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Dear Paul

ASSESSING THE EFFICIENCY COMPONENT OF NETWORK RAIL'S STRATEGIC BUSINESS PLAN

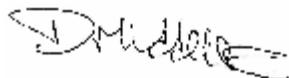
I am pleased to submit to the Office of Rail Regulation ("ORR") this report assessing Network Rail's efficiency proposals for Control Period 4, supporting the ORR's responsibility to ensure that Network Rail as owner and operator of the national railway infrastructure manages the network efficiently and in a way that meets the needs of its users. The position taken on Network Rail's efficiency improvements will be a central part of the ORR's determinations for CP4 – Network Rail must be strongly incentivised to strive for challenging but achievable efficiency improvements, without compromising health and safety or risk management.

This document has been prepared by Ernst & Young. The information and opinions contained in this document are derived from information provided by the ORR and Network Rail which we believe to be reliable and accurate but which, without further investigation, cannot be warranted as to their accuracy, completeness or correctness. This information is supplied on the condition that Ernst & Young, and any partner or employee of Ernst & Young, are not liable for any error or inaccuracy contained herein, whether negligently caused or otherwise, or for loss or damage suffered by any person due to such error, omission or inaccuracy as a result of such supply. In particular any numbers, initial valuations and schedules contained in this document are preliminary and are for discussion purposes only.

In carrying out our work, we have worked solely on the instructions of the ORR and for its sole purposes. No responsibility is taken or accepted by Ernst & Young for any losses which may result to third parties through their use or reliance on the report. This report may not have considered issues relevant to any third parties, any use such third parties make of our report is entirely at its own risk.

We would welcome the opportunity to discuss our report with you in more detail. In the meantime, please do not hesitate to contact me if you have any queries.

Yours sincerely



Dougald Middleton
Partner, Ernst & Young LLP

Contents

- 1.0 Executive Summary 1
- 2.0 Introduction & Overview 8
- 3.0 Our Methodology..... 9
- 4.0 Efficiencies in Context 11
- 5.0 Detailed analysis of Maintenance..... 13
- 6.0 Detailed analysis of Renewals 20
- 7.0 Operational Expenditure..... 26
- 8.0 Benchmark Review 31

1.0 Executive Summary

1.1 Introduction & Overview

At the end of October 2007, Network Rail (“NR”) submitted to the Office of Rail Regulation (“ORR”) its Strategic Business Plan (“SBP”) for Control Period 4 (“CP4”) which covers the period 1 April 2009 to 31 March 2014. The SBP sets out what outputs NR intends to deliver over CP4, what activity it expects to undertake to deliver these outputs and the expenditure it expects to incur. As part of the submission, NR included its assessment of the scope for efficiency savings over CP4.

The ORR sought support in assessing how NR has combined the results of its individual studies, and how it took into account the findings of other studies. The ORR asked Ernst & Young to make an assessment of how NR has combined the studies, and whether this has been done in a reasonable and robust way.

In carrying out our review we sought to assess whether:

- NR’s approach to deriving its overall efficiency assumption was comprehensive, robust, and transparent;
- NR’s approach is likely to have led to inaccuracies, including “double” or “under” counting, i.e. failing to include some likely sources of efficiency, or systematically choosing conservative results;
- The conclusions of the individual efficiency reports that underpin NR’s efficiency assumptions have been taken into account in the overall assessment in an appropriate manner;
- NR has responded to the evidence put forward within the externally commissioned studies, and, where appropriate, included them within its own efficiency assumptions;
- NR has explained clearly and comprehensively why they do not consider it would be appropriate to include the findings of benchmark studies;

- There are gaps or flaws in NR’s analysis, i.e. whether there are any areas in which it should reasonably have been expected to investigate the scope for efficiency gains where it has not; and
- There any areas of NR expenditure that needs further analysis.

1.2 Summary of Findings

1.2.1 Overview

In setting a challenging yet deliverable efficiency profile for NR, we believe it is necessary to view the efficiency target within the wider regulatory context to consider how the target, and NR’s approach to delivering it, will be influenced by the regulatory framework.

We believe it is prudent to consider where the risk of non delivery of the efficiency targets resides. If NR has a risk buffer and other protections within the regulatory framework that will enable it to finance its activities in the event that efficiency targets are not met, the ultimate risk resides with NR’s customers and funders. It is therefore, essential that an appropriate balance between setting a challenging target and one that is realistic and deliverable is achieved.

As a “not for dividend” company, if NR was to exceed its efficiency targets the surpluses generated would be available for reinvestment in discretionary schemes across the respective networks or for reducing its borrowings. Achieving the right balance between ensuring that the appropriate incentives remain whilst protecting the delivery of wider HLOS outputs is crucial. It is therefore important to consider the targets as part of the financial framework as a whole.

In addition to this issue, it is widely argued that the absence of equity and the provision of the Government guarantee of NR’s debt places less financial incentive on NR than would be the case under a traditional equity based structure. That is, NR’s current financial structure omits some of the financial incentives that would be apparent in other regulated businesses. The introduction of unsupported debt is expected to increase the incentives placed on NR to deliver further efficiencies.

We have not commented on the validity of this argument and recognise that the introduction of unsupported debt has a number of other implications which impact on NR. We note that NR does not appear to have considered whether further efficiencies would be forthcoming as a result of the increased monitoring, scrutiny and controls related to the introduction of unsupported debt. Furthermore, it does not appear to be acknowledged in the SBP that the delivery of any of the efficiencies will be facilitated by the introduction of unsupported debt. It is, therefore, possible that NR has not considered the benefits that this structure may deliver and there could be scope for further savings arising from this new structure. In its December 2006 report *Corporate Form, Financial Guarantees, and Efficiency Performance: Expectations and Evidence*, NERA Economic Consulting estimated that “it is most reasonable to assume that a positive but relatively modest increase in cost efficiency performance – perhaps in the region of 0.5% p.a. – will result from the proposed change to Network Rail’s guarantees.”

In considering NR’s submission, we have noted that NR’s approach is structured and progress has been made since we were involved within the Railtrack Administration. NR’s team was open and constructive in sharing its approach, providing clarification and detail to the process and in aiding our review. However, we also note that the evidence to support the final targets is insufficient to either accept or reject NR’s proposals.

1.2.2 The Target

In reaching the efficiency target in each of the expenditure categories, NR has used a two step approach. First, a bottom-up approach has been used to calculate the efficiencies achievable in identifiable areas; then a top-down overlay has been applied to deliver a uniform annual efficiency profile of 5%, 5%, 4%, 3%, 2% over CP4. This equates to an overall efficiency of 17.6% over the five year period. The difference between the bottom-up identified savings and the top-down profile is categorised as “stretch” efficiencies to be identified at a later date.

As the difference between the bottom-up and top-down stretch profile is, by definition, unidentified, the stretch target appears to be a balancing number to ensure that each business area delivers the 17.6% target. We understand there to be no plans on how the ‘stretch’ will be delivered. NR indicates that these areas will be identified as further work is undertaken in the remaining periods of CP3 and in CP4, but the unidentified efficiencies are significant (in the case

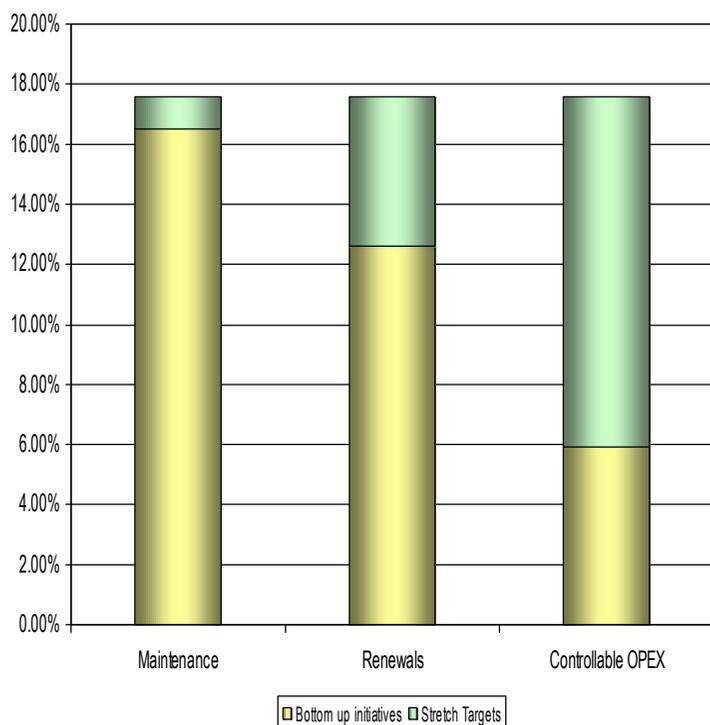
of operational expenditure they represent almost all of the 17.6% target) and it is difficult to review this stretch for reasonableness.

We highlight this as an area of risk but also consider that this demonstrates that the NR analysis and submission could be further developed as it fails to provide a comprehensive, justifiable and robust audit trail.

There is limited evidence to support NR’s management top-down overlay to generate a target of 17.6%. In discussions with NR it stated that this was an informed management view following detailed internal discussions; however, we have seen no evidence to support the final figures. This, in itself, highlights a lack of a detailed and robust audit trail.

Further questions arise when considering that the 17.6% target is applied to all cost categories; Maintenance, Renewals and Operating Expenditure. Without a robust justification, the same target of 17.6% for each cost category appears unusual, particularly when considering that the ‘bottom-up’ initiatives across the three business functions leave such significant differences in the value of ‘stretch’. For example, the stretch target for Maintenance is only 1.1%, whereas, for Controllable Operating Expenditure it is 11.7%. This implies a very different level of detailed initiatives underpinning the target and also a very different risk across the two functions.

The figure below highlights the disparity across the three cost categories:



1.2.3 Consistency

We highlight that the figures sourced from NR's various financial models do not appear to be consistent with the figures presented within NR's SBP. Furthermore, it is not clear whether the figures included within the SBP are consistent with the proposals for a 17.6% efficiency target. NR's modelling appears to only include the identified initiatives, with the stretch element not appearing to have been included. For example, Appendix 1 of the SBP includes a Maintenance total of £4,819m for CP4 compared with a total of £4,773m when compared to NR's internal

modelling of the figures. We would also expect the actual target to be lower than the £4,773m modelled once the additional stretch target of 1.1% is added to the figures (we understand the £4,773m modelled by NR to be pre-stretch, however we recommend that the ORR confirm this). Our analysis suggests a figure of £4,755m may be more appropriate (Section 5.3).

We also note that the price basis of the NR Maintenance Efficiency model is stated as being 2007/08 prices whereas Appendix 1 of NR's SBP states prices in 2006/07 values. Presenting these figures in consistent price bases would further compound the potential differences.

The variation is not material when considering the scale of the numbers. However, we highlight this as evidence that the quality controls in place during the development of the targets may not have been sufficient to ensure a robust submission.

As is the case in respect of the Maintenance supporting spreadsheets, the Renewals figures included within its financial models differ from those figures presented within NR's SBP. Appendix 1 of the SBP includes a Renewals total of £12,487m for CP4 compared to a total of £11,424m (pre efficiencies) or £10,378m (post efficiencies) when compared to NR's internal modelling of the figures, up to £2,109m difference (pre stretch) over CP4. NR's own SBP does not appear to be internally consistent as Figure 5 of NR's SBP quotes a total £11,362m.

We would also expect the actual target to be lower than the £10,378m modelled once the additional stretch target of 5.0% is added to the figures. Our analysis suggests a figure of £10,242m may be more appropriate (see Section 6.8).

Whilst it is likely that there will be a justification for the differences in the figures presented within the SBP and those included within the respective NR financial models, this difference is not immediately apparent or clearly articulated. The absence of this information highlights a shortfall in the audit trail to justify the analysis presented.

We recognise that the SBP includes £885m of 'Discretionary Investment' and £596m of 'Other Renewals'. However, we have not been provided with any financial models supporting these figures and these values were not discussed by NR at the meeting to address Renewals efficiency modelling. Furthermore, taking these figures into account still leaves a difference with the SBP totals.

We also note that the SBP total efficiencies for Renewals of 12.6% appears to only apply to the six cost categories covered within the financial models we have been provided. This highlights that there are no potential efficiencies being applied to the categories of 'Other Renewals' and 'Discretionary Investment'. We recommend that the ORR seek further clarification from NR on this point.

NR's modelling approach is inconsistent across the three efficiency categories of Maintenance, Renewals and Operational Expenditure. This raises queries with regards to the adequacy and completeness. The inconsistency of approach, with differing detail of bottom-up analysis, raises the concern that NR's overall approach is not "joined up", which may mean a risk of gaps or inadequacies in the figures.

Furthermore, the level and quality of the supporting information and analysis varies significantly. For example, there is little justification provided in either the SBP or the supporting documentation to support the profile adopted for operational expenditure. Comparing the methodologies across the efficiencies categories, Maintenance and Renewals forecasts are better developed, although the approaches followed for these two categories are very different.

The combination of these issues raises questions over the integrity of the modelling and the quality control processes that underpin the financial submission.

We would ordinarily expect that in order to comply with modelling Best Practice, the financial models would have been audited and/or independently reviewed to check for logical and arithmetic integrity. We would further expect that detailed user guides and assumptions books would have been developed to justify and record the core assumptions. As far as we are aware this detail is not available.

These issues have the potential to undermine the quality, accuracy and validity of NR's submission and more importantly, its argument for setting a target of 17.6%.

1.2.4 Stretch

As shown in the graph in section 1.2.2 above, the level of stretch across the three cost categories varies significantly. It could be argued that either the stretch for Controllable Operational Expenditure is highly risky or the maintenance target is easily deliverable and could be made more challenging.

It is unclear why a uniform efficiency target of 17.6% should apply across all the categories of Operational Expenditure, Maintenance and Renewals. In the SBP, NR suggests that benchmarking studies indicate that it is performing more efficiently in some areas than others; for example, internal benchmarking on signalling illustrated a 10% spread in type B schemes compared to a 14% spread in type A schemes. This is consistent with the CP3 targets, where the efficiency targets for controllable operational expenditure, maintenance and renewals were 29.7%, 34.1% and 29.7% respectively. On this basis, we would expect a higher efficiency target to be set in those areas where NR is further behind best in class than in those where it is closer to, or at, the Frontier.

The fact that there are unidentified efficiencies in the "stretch" gives rise to a concern that NR proposes to use the 'stretch' target as a cushion to absorb increases in the value of bottom-up initiatives that ORR may determine to be achievable; ie if the value of identified bottom up initiatives increase, the stretch target is reduced to compensate. Under this scenario, only if the value of additional bottom-up initiatives exceeds the value of stretch will the target of 17.6% be increased. We are not convinced of the validity of this argument, particularly as we have seen limited evidence to justify the stretch figures adopted. As there are no clearly identified mechanisms for delivering the stretch target, although it has been discussed by NR management, we believe it is reasonable to assume that NR is willing to accept the risk involved in achieving the stretch target. Therefore, in accepting an element of risk within its Business Plan submission, any amendments to the underlying initiatives should not lead to a change to the stretch target to compensate (ie, any increase in bottom-up efficiencies will lead to a corresponding increase in total efficiencies, with the stretch

target remaining unchanged). This should also apply if the underlying initiative target is reduced in any way.

Elements of how the bottom-up analysis was developed raise questions over how challenging the efficiency targets might be. In a meeting to discuss the methodology, NR management stated that the bottom-up efficiency targets were largely identified by the managers who will be responsible for meeting them. This leads to the risk that targets set are more conservative than would otherwise be the case, as managers are unlikely to set themselves ambitious targets, particularly if financial bonuses are at stake for non-delivery. In the absence of equity holders the financial framework makes a strong argument as to the benefit and strength of having financial incentives in place to ensure delivery. These incentives may have led to the setting of a less onerous target, particularly in the absence of independent challenge and scrutiny. We would have expected some external challenge of the targets, whether by parties internal or external to NR, to test that the targets set are sufficiently challenging. We would expect this to be Best Practice and a standard approach to setting targets but have seen no evidence in our review to suggest that this was the case.

1.2.5 Audit Trail & Justification

There does not appear to be a sufficiently detailed and well structured audit trail to justify NR's proposals. For example, there is little bottom-up analysis to justify the level of efficiencies targeted within operational expenditure. The 17.6% target could present significant risk or be easily achievable; however, the analysis and evidence in the SBP and supporting documents provide limited insight in this regard.

The modelling information and back up material provided for both Maintenance and Renewals is reasonably transparent and well structured; however, there is a lack of detail as to how the assumptions underlying the efficiency projections were derived. The use of financial models and sensitivity analysis is detailed, appears robust and is well structured. However, it lacks sufficient detail relating to the underlying assumptions, particularly around the sensitivity analysis. As already highlighted, we have seen no evidence to suggest that the models have been independently audited or checked, therefore, the accuracy and validity of the modelling is unknown.

We would expect a Best Practice approach to involve a combination of sensitivity, scenario and Monte Carlo testing. Whilst the approach followed by NR for Renewals includes sensitivity and Monte Carlo testing, the approach for Maintenance is less detailed and that followed for Operational Expenditure is more limited again.

Operational Expenditure forecasts have limited back up documentation and have not been developed with the same level of detail as Maintenance and Renewals. Non controllable Operational Expenditure is forecast to rise by more than 14% in CP4. NR justifies this increase by stating that NR can only seek to influence efficiencies through challenging other organisations, as such its opportunities are limited. Renewals efficiencies, however, are partly driven by influencing external parties to improve productivity, by means such as providing suppliers with better visibility of the workbank, use of higher quality tender material, and driving the potential for further competition. This approach is not considered within Operational Expenditure and the argument that costs are outside of its control appear inconsistent with the Renewals approach.

We would have expected NR to provide further explanation to justify this statement and we expect NR would have considered ways in which these costs could be challenged or driven down.

Controllable Operational Expenditure is forecast to reduce year on year; however, the level of bottom-up efficiencies identified is comparatively small – although the SBP is silent on the bottom-up Operational Expenditure efficiencies, the supporting schedules show that the savings identified in areas such as signaller productivity, MOMS/fault teams, shared services and corporate accommodation could represent 5.9% efficiencies. The balance of the 17.6% target is made up of unidentified stretch, for which there is no robust audit trail.

1.2.6 Other Findings

Other findings that we would highlight include:

- NR has taken steps to ensure the issue of double counting is addressed. For example, NR's approach to renewals includes a step of sequential modelling to

mitigate against the double counting of savings. However, we have seen no evidence that this approach has been replicated across Maintenance and Operational Expenditure.

- On first sight, a number of the individual proposals appear challenging on the basis that they include a significant amount of stretch. However, this is due to the lack of clear, well structured plans to deliver the proposed efficiencies – this leads to a low bottom-up target and therefore a larger 'stretch' target to deliver the 17.6% total. This suggests that the planning in respect of efficiency programmes is not at an advanced stage. This in turn raises a concern that the deliverability of the savings could be impacted not so much by the challenge of the work required to achieve efficiencies, but more by a failure to identify additional specific initiatives in a manner timely enough to enable the required actions to be implemented and to have an impact in CP4.
- We understand that LEK Consulting reviewed the potential to undertake internal benchmarking of NR's maintenance costs. Our review of its report raised concerns that opportunities for identifying further efficiencies may have been missed. We understand that the ORR carried out a review of this nature in the Access Charges Review 2003 and would therefore expect that, subject to data improvements, an internal benchmark of NR's Maintenance business would highlight scope for further internal savings. However, the quantum of these savings is unknown.
- NR has commented on all of the external reports it has received; however, to a large extent this has only been a high level response and in some cases the argument for rejection is not compelling. For example, for Renewals, NR has included 14.2% of savings in Civils but the savings identified by the LEK benchmarking report and the ATK Procurement report total in excess of 19%. There is no explanation provided to justify this difference. We have discussed NR's response to the benchmark reports in more detail in Section 8.
- When the savings proposed across England & Wales and Scotland are considered, we have not seen any evidence to suggest that NR has considered how additional region-specific efficiencies, to take into account the differing mix of types of track and users, could be delivered in each area. It is possible that opportunities have been missed because of the generic approach adopted.

1.3 Maintenance Findings

In summary, when considering:

- The extent to which NR has developed a comprehensive list of bottom-up initiatives which deliver circa 95% of the target;
- The relatively unchallenging stretch target (when compared to Renewals and Controllable operating expenditure) set for Maintenance;
- The lack of evidence to support the top-down target of 17.6%;
- The lack of detailed audit trail and the apparent discrepancies between the figures in the NR Maintenance Efficiency model and the SBP;
- The statement by NR's own consultants that opportunities for further maintenance efficiencies may have been delivered if it weren't for the poor quality data set; and
- The ORR assessment of the potential for savings from its analysis of the UIC benchmarking exercise;

We do not believe it to be unreasonable to expect that the 17.6% total Maintenance efficiency target could be increased.

1.4 Renewals Findings

Evidence to support a challenge of NR's target includes:

- There is potentially no efficiency being applied to the categories of 'Other Renewals' and 'Discretionary Investment';
- The lack of evidence to support the top-down target of 17.6%;
- The lack of detailed audit trail and the apparent discrepancies between the figures in the NR Financial Models and the SBP;
- The importance of the timing of the introduction of efficiency programmes to the delivery efficiency – NR recognises that the methodologies identified by EWS as

offering greater efficiencies are the same as NR's, but NR's timescales for introduction are longer. If it were possible to shorten these timescales greater efficiencies may be realisable in CP4;

- The acceptance by NR that elements of external benchmarking studies are acceptable and would lead to an increase in Track renewals efficiencies over that included by NR; and
- The statement by NR's own consultants, and external benchmark reports, that opportunities for further efficiencies may be possible.

In summary, we do not believe it to be unreasonable to expect that the 17.6% total Renewals efficiency target could be increased.

1.5 Operational Expenditure Findings

The evidence and proposals presented for Operational Expenditure are limited with little or no justification to support the figures. Evidence to support challenge includes:

- The assumption that non controllable Operational Expenditure cannot be influenced suggests that any steps to influence costs in this areas could lead to additional efficiencies.
- The benchmarking studies referred to by NR do not cover all areas of Operational Expenditure – for example, only £16m of total HR costs of £50m were benchmarked. The areas that have not been benchmarked may offer additional opportunities for efficiencies that have not been identified in the preparation of the SBP.
- There may be additional operational efficiencies to be made that would not be identified by external benchmarking studies on account of the differences between NR's governance structure and that of the private companies benchmarked against.
- The large proportion of stretch highlights a risk in the ability to deliver these savings.

2.0 Introduction & Overview

At the end of October 2007, Network Rail (“NR”) submitted to the Office of Rail Regulation (“ORR”) its Strategic Business Plan (“SBP”) for Control Period 4 (“CP4”) which covers the period 1 April 2009 to 31 March 2014. The SBP sets out what outputs NR intends to deliver over CP4, what activity it expects to undertake to deliver these outputs and the expenditure it expects to incur. As part of the submission, NR included its assessment of the scope for efficiency savings over CP4.

NR has commissioned a series of individual studies to help it identify the scope for efficiency improvement. In addition, there have been a number of wider industry studies that have sought to provide further discussion on the scope for efficiencies within the industry. The NR studies are varied, some make qualitative recommendations on how NR could achieve efficiency gains, whereas, others arrive at quantitative estimates. The studies cover a range of functions and asset categories.

It is important to note that NR has not been involved with, or supports the outputs from, all of these external studies.

The ORR sought support in assessing how NR has combined the results of its individual studies, and how it took into account the findings of other studies. The ORR asked Ernst & Young to make an assessment of how NR has combined the studies, and whether this has been done in a reasonable and robust way.

As part of our review, the internal (NR commissioned) and external benchmarking reports that we have been provided were:

- NR commissioned
 - Bottom Up Studies
 - KPMG Finance & HR study
 - Compass Ltd IM Support Services study

- AT Kearney procurement benchmarking
 - LEK Internal benchmarking
 - Brian Abbott’s Nortrak track maintenance and renewals benchmarking
- Externally commissioned
 - Top-down Studies
 - LEK/Oxera Top-down review of NR unit costs
 - Union Internationale des Chemins de Fer (UIC) top down infrastructure costs study
 - LEK US Class 1 railroads study
 - Bottom-up Studies
 - Lloyds Register Rail Possessions study
 - Lloyds Register Rail Signalling unit costs
 - Lloyds Register Rail Track Renewals costs
 - DTM Consulting freight line costs
- Referred to in NR’s SBP but not received or reviewed by Ernst & Young
 - IPD Occupiers Corporate Accommodation Occupancy study
 - LEK Consulting Input prices study
 - First Economics Analysis of RPI

A more detailed commentary on NR’s views on these studies is included within section 8 of this report. In carrying out our review we sought to assess whether:

- NR’s approach to deriving its overall efficiency assumption was comprehensive, robust, and transparent;
- NR’s approach is likely to have led to inaccuracies, including “double” or “under” counting, i.e. failing to include some likely sources of efficiency, or systematically choosing conservative results;

- The conclusions of the individual efficiency reports that underpin NR's efficiency assumptions have been taken into account in the overall assessment in an appropriate manner;
- NR has responded to the evidence put forward within the externally commissioned studies, and, where appropriate included them within its own efficiency assumptions;
- NR has explained clearly and comprehensively why they do not consider it would be appropriate to include the findings of benchmark studies;
- There are gaps or flaws in NR's analysis, i.e. are there any areas in which it should reasonably have been expected to investigate the scope for efficiency gains where it has not; and
- There any areas of Network Rail expenditure that needs further analysis.

As part of our analysis, we believe it to be important to recognise the following:

- That the final efficiency target imposed for CP4, is challenging yet achievable. As such, the deliverability issues facing NR must also be considered.
- That the costs categories identified by NR in its SBP, namely maintenance, renewals and operational expenditure, are linked and expenditure plans or efficiencies in one category could be expected to have an impact on the other categories.
- That there may be potential for a difference in the efficiency targets between England & Wales and Scotland and that the efficiency savings across the two regions could differ. Should the efficiencies proposed in England & Wales and Scotland be identical, it may be possible to argue that NR has not fulfilled its obligation of submitting separately developed and costed operational plans consistent with the requirements of the individual HLOS and SOFA's.
- A robust audit trail will be critical to enable NR to defend and justify its proposals.
- The quality and accuracy of the financial modelling and presentation of outputs will be critical to bolstering confidence in the accuracy of the analysis.
- That the ORR process in carrying out its review of NR's Access Charges for CP4 has consulted with stakeholders and interested parties and provided the opportunity for them to submit their views for the network.

3.0 Our Methodology

This section highlights the methodology we have adopted to meet the ORR's objectives and the process followed in developing this report. The core objectives included within the brief can be summarised as follows:

- Assessing whether the NR analysis is robust, justifiable and provides a suitable audit trail.
- Considering whether the proposals are both challenging and deliverable.
- Evaluating whether all aspects of research are reasonably and fairly included.
- Assessing whether the SBP clearly sets out the argument for the efficiency targets for Maintenance, Renewals and Operating Expenditure independently and jointly.

As part of the process, we have:

- Attended several meetings between the ORR and NR, at which NR staff explained the process adopted in developing the efficiencies set out in the SBP.
- Reviewed Section 5 of NR's SBP title "Efficiency and Input Prices".
- Reviewed NR's supporting documents and financial models provided to us by ORR, including:
 - SBP Oct 07 financial model
 - Maintenance supporting documents
 - Operational expenditure supporting documents
 - Renewals supporting documents
 - Renewals efficiencies financial models
 - Renewals efficiencies quantified Risk Analysis outputs
 - Maintenance efficiency financial model

- Reviewed the benchmarking documents provided by the ORR (listed in Section 2.0).
- Reviewed NR's responses to the benchmarking documents provided by ORR (discussed in Section 8.0).

3.1 Limitations to Scope

As part of this review our analysis has not:

- Included a critique of the third party benchmark reports. We have limited our analysis to how NR has treated and used the findings of these reports in its preparation of the SBP. It is for the ORR to consider the adequacy of NR's analysis from a technical perspective.
- Made any assessment of the deliverability of the technical assessments and issues proposed by NR. The scope of work that Ernst & Young has undertaken does not include a technical review of the proposals put forward. Therefore, we recommend that the ORR gains comfort that the detailed technical proposals that underpin these targets are fair and reasonable.
- Included a review, discussion or assessment of Input Prices.
- Included the review of any other publicly available data and information other than that provided by the ORR and highlighted within this report.
- Included any audit or review of the formulae or calculations performed by any of NR's financial models.
- Made any assessment of, or commented on, the budget proposed by NR. Our review has focused on the efficiencies proposed rather than the underlying cost items and values within the budget.

3.2 Document Structure

The remainder of this document has been split into the following sections:

- Section 4 – Considers the efficiency proposals when compared to those delivered in CP3 and across other regulated industries.

- Section 5 – Highlights our views on the approach adopted in identifying the Maintenance efficiencies.
- Section 6 – Highlights our views on the approach adopted in identifying the Renewals efficiencies.
- Section 7 – Highlights our views on the approach adopted in identifying the Operational Expenditure efficiencies.
- Section 8 – Considers NR's response to the benchmarking reports undertaken.

4.0 Efficiencies in Context

In reviewing NR's efficiency submission we have considered how the efficiency targets will be administered, together with how these will interact and relate to the financial framework. We note that the ORR, in its February consultation update, has proposed the creation of a Ring Fenced Fund ("RFF") and other risk buffers and re-openers which NR may have recourse to in the event of cost overruns.

If NR does not deliver its efficiency targets it will, by definition, incur inefficient cost overruns. We understand that the ORR's objective is that, under this scenario, NR will ultimately have recourse to the RFF to finance the overruns. The aim is to facilitate NR maintaining an investment grade credit rating. If NR is unable to deliver the efficiency targets specified, there are mechanisms within the framework that will provide it with additional financial support. Therefore, NR will have recourse to the RFF to aid financial stability if, for example, it is unable to deliver the efficiency targets proposed. Failure to deliver the efficiency targets specified can ultimately, therefore, be to the detriment of the delivery of HLOS outputs.

The SBP indicates that NR anticipates achieving the following efficiencies by the completion of CP3:

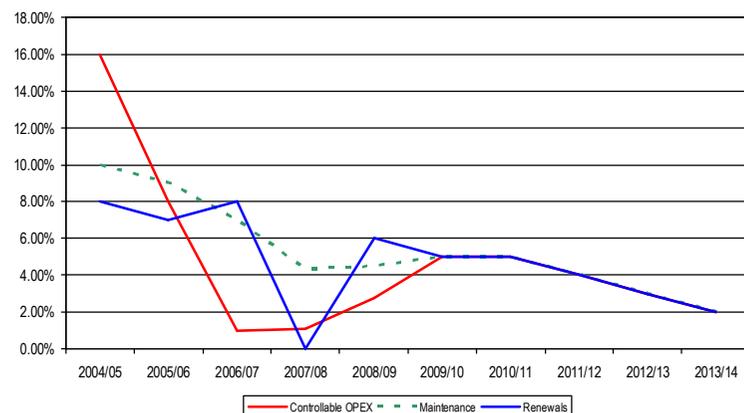
Comparison of SBP to NR Maintenance Efficiency Model Outputs						
Annual Change	2004/05	2005/06	2006/07	2007/08	2008/09	CP3 Total
Controllable Opex	16.0%	8.0%	1.0%	1.1%	2.8%	28.9%
Maintenance	10.0%	9.0%	7.0%	4.3%	4.5%	34.8%
Renewals	8.0%	7.0%	8.0%	(1.7%)	6.0%	27.3%
Total	10.3%	7.9%	6.1%	0.8%	4.8%	29.9%

These savings are broadly in line with the regulatory target set by the ORR, furthermore, 30% cost savings over a five year period is a strong performance.

We recognise that NR having delivered 30% of efficiencies highlights that at the start of CP3 NR was highly inefficient. The question remains, where does the delivery of the 30% saving now leave NR from an efficiency perspective? NR's proposals to deliver an additional 17.6% of savings suggest that it accepts that it is still not yet at the frontier and this is corroborated by a number of the benchmarking studies which highlight that NR still has scope for further additional efficiencies. We note that, in some cases, the benchmarking studies highlight that NR is already at the frontier in terms of costs when compared to other comparable businesses (see Section 8.0 for detail); however, these areas only represent a small fraction of NR's total cost base.

It is also sensible to consider NR's efficiency target within the context of the wider financial framework. It is worth considering NR's financial structure. The ORR commissioned consultants NERA to undertake a review of the financial incentives on NR and the impact on the efficiency of NR resulting from the introduction of unsupported debt.

Efficiency Profile



It has been debated within the industry that the absence of equity and the provision of the Government guarantee places less financial incentives on NR than would be the case under a traditional equity based structure. That is, NR's current financial structure omits some of the financial incentives that would be apparent in other regulated businesses. The introduction of unsupported debt is expected to increase the incentives placed on NR to deliver further efficiencies.

We have not commented on the validity of this argument and recognise that the introduction of unsupported debt has a number of other implications and impacts on NR that also need to be considered. We note that NR does not appear to have considered whether further efficiencies would be forthcoming as a result of the increased monitoring and controls related to the introduction of unsupported debt. Furthermore, there does not appear to have been

acknowledgement within the SBP that the delivery of any of the efficiencies is facilitated by the introduction of unsupported debt. It is, therefore, possible that NR has not considered the benefits that this structure may deliver and there could be scope for further savings arising from this new structure.

Further comparison can be made between NR and companies in other regulated industries. The NERA Economic Consulting report *Corporate Form, Financial Guarantees, and Efficiency Performance: Expectations and Evidence* draws the comparison with privatised regulated and debt-financed utilities in the UK which have achieved real unit operating cost reduction of the order of 5% per annum over a sustained period of time. This exceeds the 5%, 5%, 4%, 3%, 2% profile put forward by NR.

Scottish Water, which in the view of the Water Industry Commissioner for Scotland was the least efficient water and sewerage company in the UK in 2002, was able to achieve savings of approximately 8% per annum between 2002 and 2006. In addition to that level of efficiencies, which would equate to 46% over a 5 year period, the regulator set the price cap on the basis that Scottish Water could achieve even stronger performance.

NERA found that English and Welsh water utilities have consistently outperformed efficiency targets since privatisation and that there were very few individual examples of underperformance in these companies. Scottish Water's performance and the sustained efficiencies achieved by regulated utilities in the UK suggest that for NR ongoing efficiencies at a level greater than 17.6% may well be reasonable.

Whilst no firm conclusions can be drawn from comparisons such as these, the evidence does raise the question of whether, when introducing a financial structure to NR that is more comparable to other regulated industries, NR could be expected to deliver efficiencies that follow a similar profile. We note that the NERA report concludes that "it is most reasonable to assume that a positive but relatively modest increase in cost efficiency performance – perhaps in the region of 0.5% p.a. – will result from the proposed change to Network Rail's guarantees."

5.0 Detailed analysis of Maintenance

5.1 NR's Approach & Proposals

NR states within its business plan that:

"Maintenance covers the continuing correct operation of all of its assets – from enabling the fault free operations of track and signalling to maintaining the fabric and facilities at stations."

NR's overall aim is to promote efficiencies by providing a reliable railway. In the SBP, NR states that it sees this as a long-term aim but that it intends to achieve it by intervening in advance of things going wrong, doing the work right first time and preventing failures, at an efficient and sustainable level of cost.

The SBP indicates that NR expects to achieve ongoing efficiencies during CP4 by means of two strategies:

- Reviewing and reducing what NR will do (ie, scope efficiency); and
- Improving the efficiency of how it will do it (ie, process and price efficiency).

NR anticipates that the key elements of this will be the move from a "find and fix" regime to one of "predict and prevent", and a continued drive to improve productivity.

NR's approach to the forecasting of maintenance consists of a combination of a bottom-up and a top-down approach. The bottom-up calculations used the actual current costs as the starting point. This was then adjusted for efficiencies. The top-down calculation is then overlaid on these figures and the difference between the two is identified as "stretch" to be achieved through as yet unidentified efficiencies.

5.2 Bottom-up Calculation Process

NR's process for calculating the bottom-up figures is as follows:

- Maintenance costs are taken from the Maintenance Efficiency model;
- The efficiency figures are based on the emerging costs from the first five periods of 2007-08, extrapolated forward to calculate an annual equivalent value;
- These CP3 costs are split in the Maintenance Efficiency Model by major unit costs headings and by expense type;
- The model then identifies the action/efficiency programme that is expected to impact each cost element, together with the percentage efficiency impact for each year of CP4, and multiplies them up to give an annual cost profile over CP4;
- Total efficiencies are then consolidated and summarised to give the Maintenance efficiencies (including risk) by type.

5.3 Maintenance Profile

NR's Maintenance Efficiency model provides the following cost breakdown for Maintenance:

Maintenance Spend (pre stretch)							
Maintenance £m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Track	412	376	356	340	330	315	1,716
Signals	134	122	115	104	98	94	533
E&P	51	46	44	44	43	43	220
Telecoms	55	65	58	52	51	51	278
Other Main	48	47	47	46	46	46	233
Overheads	230	228	221	216	213	210	1,087
Engineering	55	55	55	55	55	55	273
NDS	53	50	45	45	45	45	231
Other	40	40	40	40	40	40	202
Total	1,077	1,029	980	942	922	899	4,773
<i>Source : NR Maintenance Efficiency Model</i>							

Of immediate concern is that the figures sourced from NR's Maintenance Efficiency model differ from the tables set out within the SBP. Appendix 1 of the SBP includes a Maintenance total of £4,819m for CP4 compared to a total of £4,773m calculated in NR's internal modelling of the figures, a £46m difference (pre stretch) over CP4. We would also expect the actual target to be lower than the £4,773m modelled once the additional stretch target of 1.1% is added to the figures. Our analysis suggests a figure of £4,755m may be more appropriate.

We also note that the price basis of the NR Maintenance Efficiency model is stated as being 2007/08 prices whereas Appendix 1 of NR's SBP states prices in 2006/07 values. Presenting these figures in consistent price bases would further compound the differences.

Whilst it is likely that there will be a justification for the differences in the figures presented within the SBP and those included within the Maintenance Efficiency Model, this difference is not immediately apparent or clearly presented. The absence of this justification highlights that there is not a clear audit trail to justify the analysis presented.

Comparison of SBP to NR Maintenance Efficiency Model Outputs						
Maintenance £m	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
SBP App 1 figs	1,040	989	951	926	914	4,819
Pre Stretch	1,029	980	942	922	899	4,773
Post Stretch	1,023	978	941	914	899	4,755
Diff pre stretch	11	9	9	4	15	46
Diff post stretch	17	11	10	12	15	64
<i>Source : EY Analysis of NR Maintenance Efficiency Model & NR SBP Appendix 1</i>						

These differences raise questions over the integrity of the modelling and the quality control processes that underpin the financial submission. These issues have the potential to undermine the quality, accuracy and validity of NR's submission and more importantly, its argument for setting a target of 17.6%.

5.4 Efficiencies Identified

The NR Maintenance Efficiency Model provides further detail relating to how the efficiency savings will be delivered. Ernst & Young analysis of NR's model provides the following breakdown against the main cost categories:

Efficiencies by cost category							
Maintenance £m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Track	-	36	20	16	9	15	97
Signals	-	12	7	11	6	4	39
E&P	-	5	2	1	0	1	8
Telecoms	-	(10)	7	6	1	-	4
Maint. Other	-	1	0	0	-	-	2
Overheads	-	2	8	5	3	3	20
Engineering	-	-	-	-	-	-	-
NDS	-	3	5	-	-	-	8
Other	-	-	-	-	-	-	-
Total	-	48	49	38	20	23	178
% Change		4.4%	4.8%	3.9%	2.2%	2.4%	16.5%

Source : EY Analysis of NR Maintenance Efficiency Model

Note: The NR SBP states that the total efficiencies from bottom-up initiatives totals 16.7%. Our recalculation of the total efficiencies suggests that they are only 16.5%.

The specific initiatives identified by NR to achieve these efficiencies are summarised in the table below.

Bottom-Up Efficiency Initiatives							
Maintenance £m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Volume chg	-	0	0	0	0	0	0
Activity mix	-	1	1	2	1	2	6
Reprioritisation	-	0	0	0	0	0	0
Planning	-	1	1	0	0	0	3
Int productivity	-	52	28	26	15	18	139
Ex productivity	-	0	0	0	0	0	0
Procurement	-	-6	19	11	4	3	30
Controls	-	0	0	0	0	0	0
Total	-	48	49	38	20	23	178
% Change		4.4%	4.8%	3.9%	2.2%	2.4%	16.5%

Source : EY Analysis of NR Maintenance Efficiency Model

This table highlights that the majority (£169m of £178m – ie, 95%) of efficiencies are to be delivered from schemes focusing on Procurement and Internal Productivity process improvements. The analysis further highlights that only 1.1% of the total 17.6% target for Maintenance efficiencies are classed as 'stretch'. The 16.5% 'Bottom-Up' initiatives are made up on the following separate schemes:

- Reducing inspection frequencies

- Review the inspection and maintenance frequencies for assets
- Signalling: risk assessment using reliability centred maintenance on signalling equipment (ROSE) process
- Track assets: embedding of train-borne inspection to reduce the frequency of pedestrian inspection levels
- Tackling root cause of reactive work
 - Better planning on maintenance with a shift from “find and fix” to “predict and prevent”
- Improved front line productivity
 - Managing the way in which work is planned, packaged and delivered
 - Delivery Unit Improvement Programme – Support team of project, technical and behavioural specialists to be placed in delivery units to identify, implement and coach on specific areas for improvement
 - Using lean and six sigma techniques with front line staff to identify and eliminate waste from day-to-day processes
- Reduced functional overheads
 - Review of functional overhead structure
- Tamping
 - Packaging and planning on-track machine work more effectively
 - Reduction in hired-in tamping fleet in CP4
- Ultrasonic test trains
 - Train mounted ultrasonic testing supported by road rail testing, enabling plain line in all main lines to be tested automatically
- In-sourcing of train-borne inspection and rail grinding activities
 - These contracts expire during CP4 and will be brought in house post expiry
- Intelligent infrastructure

- Remote condition monitoring (RCM) of critical assets will permit operational data to be automatically analysed to identify deviations
- Majority of the benefit from this initiative will improve train performance rather than drive maintenance efficiencies

5.5 Top-down Calculation Process

The bottom-up process summarised above calculates the efficiencies expected to be delivered through specific initiatives. These are expected to deliver overall savings of 16.5%. However, in line with the operations expenditure and renewals cost categories, NR has calculated a top-down efficiency profile with an annual reduction of 5%, 5%, 4%, 3%, 2%, totalling 17.6% over CP4. The 1.1% difference between specific initiatives and this total is described by NR as “stretch”.

5.6 Commentary

When compared to operational expenditure and renewals, the proportion of maintenance efficiencies identified by bottom-up analysis is substantially higher, with 16.5% of the total 17.6% efficiencies being specifically identified.

Core to the strategy of making efficiencies in maintenance is using fewer staff and reducing scope through efficient monitoring and execution of maintenance. From a deliverability perspective this raises the risk of not being able to maintain current output levels. We recommend that the ORR technical review forms a judgement as to the adequacy of this approach.

The Maintenance Efficiency Model provides an audit trail back to the impact of efficiency programmes on individual costs areas; however, it does not provide the details for how the scale of the impact of the programmes has been calculated. From discussions with NR, we understand that many of the efficiency impacts are quite broad estimates, with adjustments made for NR managers’ “gut feel”. We do not feel that this is a robust method of assessing efficiencies, particularly when NR managers will be tasked with delivering the efficiency

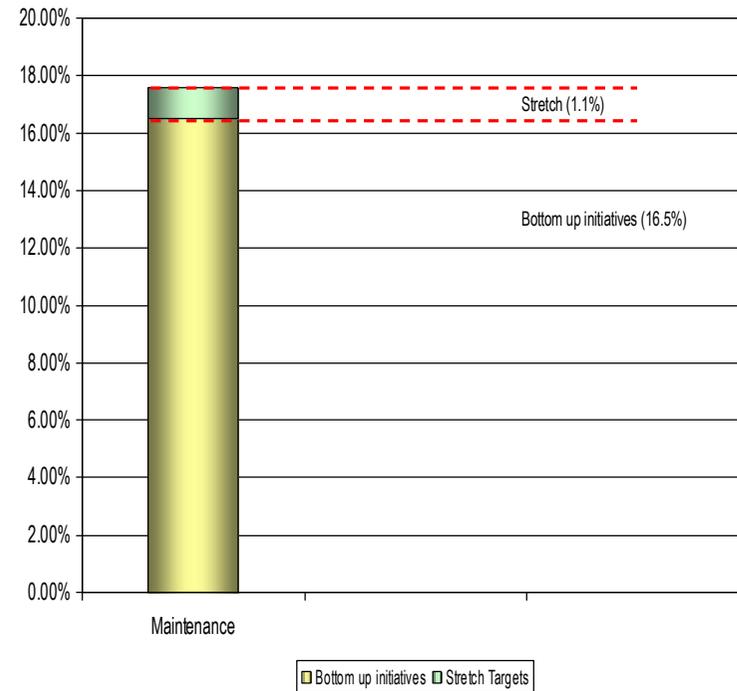
targets that they have set themselves – it is likely that an element of prudence will have been incorporated.

For example, in relation to the year 2009-10, the impact of the Productivity programme on a number of cost elements is estimated at 14%; however, in the case of Ultrasonics and Patrolling, amongst others, this has been reduced to 7% as NR managers felt it was not prudent to assume the full 14% was achievable universally. It is not clear from the Model or from the supporting documents reviewed whether the basis for the 14% or 7% efficiency savings is reasonable. The unscientific methodology adopted suggests that, were a more detailed approach adopted for building up the efficiency estimates for each cost element, different (possibly more demanding) targets could be established.

Unlike the process followed in the bottom-up analysis of renewals efficiencies (discussed in Section 6.2), the methodology for maintenance does not explicitly address the risk of double-counting in the efficiency targets. The level of detail to which costs have been broken down in the Maintenance Efficiency Model gives some comfort that the risk of double-counting may have been mitigated against; however, as this is not specifically addressed in the SBP, we cannot be sure that that is the case.

5.7 Stretch

With the identified bottom-up initiatives making up 16.5% of the overall 17.6% efficiencies target, the stretch element of the maintenance efficiency target is therefore just 1.1%. This compares to 11.7% for controllable operational expenditure and 5.0% for renewals. Whilst this gives greater comfort in the achievability of the maintenance efficiencies target, it also raises the concern that the overall target of 17.6% is low, with only an additional 1.1% of unidentified efficiencies remaining over CP4 as a whole. Applying the additional 1.1% stretch target decreases the total Maintenance requirement from £4,773m to £4,755m.



Impact of applying stretch to Maintenance Model							
Maintenance £m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Pre Stretch	1,077	1,029.1	979.9	942.2	921.9	899.4	4,772.5
Initiative (%)	-	4.4%	4.8%	3.9%	2.2%	2.4%	16.5%
Initiative (£m)	-	47.8	49.2	37.7	20.3	22.5	177.6
Stretch (%)	-	0.6%	0.2%	0.1%	0.8%	-	1.5%
Stretch (£m)	-	6.0	2.3	1.5	8.0	-	17.7
Total (%)	-	5.0%	5.0%	4.0%	3.0%	2.4%	18.0%
Total (£m)	-	53.8	51.5	39.2	28.3	23	195.3
Post Stretch	1,077	1,023.1	977.7	940.7	913.9	899.4	4,754.8
<i>Source : EY Analysis of NR Maintenance Efficiency Model</i>							

5.8 Benchmarking Studies

The SBP makes no reference to any internal benchmarking studies in relation to maintenance. However, we understand that LEK Consulting reviewed the potential to undertake internal benchmarking of NR's maintenance costs but stated that:

"meaningful benchmarking analysis was not possible because the range of productivities in the Maintenance raw data was too wide to plausibly represent genuinely comparable results."

However, we note that LEK Consulting also stated that:

"It is urgent that Network Rail address these issues so that normalised unit cost benchmarking is possible in the future...nevertheless, the study provided important outputs to Network Rail."

- *Identified a detailed list of structural factors*
- *Provided a clear definition of good practice benchmarking and a detailed action plan to deliver this."*

This raises the concern that opportunities for identifying further efficiencies may have been missed. This is particularly important when considering that LEK Consulting found there to be scope for up to 13% efficiencies when comparing NR's various renewals business against each other.

We understand that the ORR carried out a review of this nature in the Access Charges Review 2003 and would therefore expect that, subject to data improvements, an internal benchmark of NR's Maintenance business would highlight scope for further internal savings. However, the quantum of these savings is unknown.

The SBP also indicates that some external benchmarking studies and comparisons with other European networks were considered in relation to NR's maintenance plans. The SBP acknowledges that the UIC lasting infrastructure costs benchmarking study ("LICB") shows a "significant gap" between NR's costs and those of the lowest cost railway in Europe. NR states that the study has been:

"a significant factor in influencing the level of savings we believe can be taken out of our maintenance activities through reduced inspection and higher quality renewals which require reduced maintenance intervention"

whilst work with Deutsche Bahn:

"has been used to support the stretch level of productivity we have modelled."

Although the SBP refers to these external studies, it does not detail how specific reliance has been placed on them and how NR's 17.6% target relates to the "significant gap" identified in the study. In a meeting to discuss the efficiencies, NR indicated that it intends to carry out further investigation into the reasons for this gap.

The ORR analysis of the LICB data suggested a gap of between 30% and 50% between NR and the most efficient operators across Europe. Using the lower range of this is further evidence to suggest that the 17.6% target could be challenged and increased.

5.9 Summary

In summary, when considering:

- The extent to which NR has developed a comprehensive list of bottom up initiatives which deliver circa 95% of the target;
- The relatively unchallenging stretch target (when compared to Renewals and Controllable operating expenditure) set for Maintenance;
- The lack of evidence to support the top-down target of 17.6%;
- The lack of detailed audit trail and the apparent discrepancies between the figures within the NR Maintenance Efficiency model and the SBP;
- The statement by NR's own consultants that opportunities for further maintenance efficiencies may have been delivered if it weren't for the poor quality data set; and
- The ORR assessment of the potential for savings (of circa 30%) from its analysis of the UIC benchmarking exercise;

We do not believe it to be unreasonable to expect that the 17.6% total Maintenance efficiency target could be increased. We recommend that the ORR's technical review team undertake analysis of the potential for further efficiencies.

6.0 Detailed analysis of Renewals

6.1 NR's Approach & Proposals

NR's SBP states:

"Renewals to assets on the network are carried out when their condition has deteriorated to a level where it is more economic in whole-life cost terms to renew the asset than to continue to maintain it. The rules governing the calculation of whole-life cost and the preferred method and type of renewals are laid out in the Asset Policies and the Asset Policy Justifications. This [the Renewals] section explains how we have generated efficiency plans applicable to the individual asset types and, at a high level, what those efficiency plans are. More detail is contained in the individual asset investment plans, which are supporting documents to this Strategic Business Plan."

NR's approach to the forecasting of renewals consists of a combination of a bottom-up and a top-down approach. The bottom-up calculations used the renewals costs in the Infrastructure Cost Model (ICM), broken down by worktype, as the starting point. This is then adjusted for efficiencies identified by managers and through benchmarking reports. The top-down calculation is then overlaid on these figures and the difference between the two is identified as "stretch" to be achieved through as yet unidentified efficiencies.

6.2 Bottom-up Calculation Process

NR's process for calculating the bottom-up figures is as follows:

- Renewals costs taken from the ICM were broken down by worktype;
- In a separate worksheet for each relevant initiative the efficiency impact is estimated by NR project managers as a high, medium and low saving applicable to particular worktypes in the Asset Cost Model (ACM), and the impact calculated according to which scenario (high/medium/low) is being run;

- Total efficiencies are then consolidated and summarised to give the "...Renewals efficiencies (including risk) by type" tables included in the SBP (pp99-104);
- Sequential modelling (estimating efficiency savings by scope, then process/plan and then price) is also carried out in order to mitigate the risk of double-counting. The difference between the ACM figures and sequential modelling results is then calculated;
- Sensitivity analysis is carried out on the high, medium and low efficiencies level and the difference between the ACM and sequential modelling figures applied to the results to give the figures in the "QRA probability" tables in the SBP (pp99-104).

As part of our review we have been provided with copies of the following NR models which provided the detail within each of the various cost categories:

- Civils efficiency V101 05102007.xls – The 'Civils Efficiency Model' providing detailed figures for Civils efficiencies
- E&P efficiency model V5 v121.xls – The 'Electrification & Plant Efficiency Model' providing detailed figures for Electrification & Plant efficiencies
- Op prop efficiency model v006 05102007.xls – The 'Operational Property Efficiency Model' providing detailed figures for Operational Property efficiencies
- Signalling efficiency model v1 7 20071019.xls – The 'Signalling Efficiency Model' providing detailed figures for Signalling efficiencies
- Telecoms efficiency model V105 03102007.xls – The 'Telecoms Efficiency Model' providing detailed figures for Telecoms efficiencies
- Track efficiency model v011 15102007.xls – The 'Track Efficiency Model' providing detailed figures for Track efficiencies

We note that we have not received models addressing the elements of 'Discretionary Investment' and 'Other Renewals' which are broken down within the SBP.

6.3 Renewals Profile

Renewals Spend (Pre Efficiency pre stretch)							
Renewals £m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Track	742	742	747	743	748	743	3,725
Civils	434	481	492	467	451	438	2,330
Signalling	781	476	495	508	525	546	2,549
Elec & Plant	165	161	172	180	146	151	810
Telecoms	55	71	77	65	59	73	345
Op Property	289	307	320	337	354	348	1,665
Total	2,465	2,238	2,304	2,299	2,283	2,299	11,424

Source : NR Renewals Models

Renewals Spend (Post Efficiency pre stretch)							
Renewals £m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Track	-	723	717	704	699	686	3,529
Civils	-	456	451	412	389	374	2,082
Signalling	-	453	455	452	451	452	2,263
Elec & Plant	-	153	155	155	123	125	711
Telecoms	-	69	71	58	52	64	314
Op Property	-	287	293	299	307	293	1,479
Total	-	2,141	2,142	2,081	2,021	1,994	10,378

Source : NR Renewals Models

As is the case in respect of the Maintenance supporting spreadsheets, these figures are different from those figures presented within NR's SBP. Appendix 1 of the SBP includes a Renewals total of £12,487m for CP4 compared to a total of £11,424m (pre efficiencies) or £10,378m (post efficiencies) when compared to NR's internal modelling of the figures, up to £2,109m difference (pre stretch) over CP4. NR's own SBP does not appear to be internally consistent as Figure 5 of NR's SBP quotes a total £11,362m.

We would also expect the actual target to be lower than the £10,378m modelled once the additional stretch target of 5.0% is factored in. Our analysis suggests a figure of £10,242m may be more appropriate (see Section 6.8).

The price basis of NR's various renewals models is stated as being 2006/07 prices which is consistent with Appendix 1 of NR's SBP. However, this price base date is inconsistent with the modelling approach adopted for Maintenance.

Whilst it is likely that there will be a justification for the differences in the figures presented within the SBP and those included within the respective NR Financial Models, this difference is not immediately apparent or clearly presented. The absence of this justification highlights that there is not a clear audit trail to justify the analysis presented.

We recognise that the SBP includes £885m of 'Discretionary Investment' and £596m of 'Other Renewals'; however, removing these still leaves a substantial gap in the figures.

We also note that the SBP total efficiencies for renewals of 12.6% appears to only apply to the six cost categories covered within the financial models we have been provided. This highlights that there is potentially no efficiencies being applied to the categories of 'Other Renewals' and 'Discretionary Investment'. We recommend that the ORR seek further clarification from NR on this issue.

Comparison of SBP to NR Maintenance Efficiency Model Outputs						
Maintenance £m	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
SBP App 1 figs	2,881	2,715	2,442	2,288	2,160	12,487
Pre Stretch	2,141	2,142	2,081	2,021	1,994	10,378
Post Stretch	2,115	2,095	2,045	1,995	1,992	10,242
Diff pre stretch	740	573	361	267	166	2,109
Diff post stretch	766	620	397	293	168	2,245

Source : EY Analysis of NR Renewals Modelling & NR SBP Appendix 1

6.4 Efficiencies Identified

The following tables summarise the efficiencies identified and quantified in the bottom-up calculation:

Efficiencies by asset (£m)						
Renewals £m	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Track	19	30	39	49	57	196
Civils	25	42	55	62	64	248
Signalling	22	40	55	74	94	286
Elec & Plant	8	17	24	23	27	99
Telecoms	2	6	7	7	9	31
Op Property	20	27	38	47	55	187
Total	97	162	219	262	305	1,046

Source : NR ICM Cost Model

Efficiencies by asset (%)						
Renewals £m	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Track	2.6%	1.5%	1.2%	1.3%	1.1%	7.5%
Civils	5.3%	3.2%	3.4%	1.8%	0.9%	13.8%
Signalling	4.7%	3.3%	2.8%	3.2%	3.0%	16.0%
Elec & Plant	4.9%	4.9%	3.6%	2.5%	1.8%	16.5%
Telecoms	3.4%	4.1%	2.8%	1.2%	1.0%	11.9%
Op Property	6.5%	2.1%	2.8%	2.0%	2.4%	14.8%
Total	4.4%	2.7%	2.5%	2.0%	1.8%	12.6%

Source : EY Analysis of NR ICM Cost Model

The efficiencies quantified in the bottom-up analysis are largely the result of the following programmes:

- Programme Management
 - Project Management Framework programme – internal and external benchmarking of performance and capability.
 - Enterprise Resource Programme – IT systems development.
 - Corporate contract and procurement initiatives.
 - World class programme.
- Track
 - Reduction of suppliers from six to four.
 - Geographically aligning the delivery of switched and crossings and plain-line track.

- End-to-end process improvement programme.
- Structured reviews of engineering specifications to deliver optimised worksite.
- Project 8/200.
- Civils
 - Development of a robust and well defined workbank and In-house design facility.
- Signalling
 - Implementation of eight hour possessions.
 - Creation of a national testing team.
 - The Signalling Tools and Methods Programme (STAMP).
 - Large Investment Major Business Opportunities (LIMBO) project to eliminate bottlenecks and wastage.
- Electrification and Plant
 - Quality, flow and predictability of tenders.
- Telecoms
 - More effective packaging of similar projects.
- Operational Property
 - Standard designs and modular solutions.

Taken together, the bottom-up calculations of the savings anticipated as a result of these initiatives gives the 12.6% efficiencies identified in the table above.

6.5 Top-down Calculation Process

The bottom-up process summarised above calculates the efficiencies expected to be delivered through specific initiatives are expected to deliver overall savings of 12.6%. However, in line with the operations and maintenance cost categories, NR has calculated a

top-down efficiency profile with an annual reduction of 5%, 5%, 4%, 3%, 2%, giving 17.6% over CP4. The 5.0% difference between specific initiatives and this total is described by NR as “stretch”.

6.6 Commentary

There appears to be some inconsistencies between the SBP and the schedules provided by NR as back-up to the SBP:

- The renewals efficiency spreadsheets provided by NR do not agree exactly to the figures used in SBP pp99-104. In most instances these are minor differences (in the order of 0.1%), but in the case of Signalling it is within the order of 0.9% per annum.
- It is unclear how the bottom-up initiatives values in Figure 5.20 of the SBP relate to those values in NR’s renewals efficiency spreadsheets. For instance, Figure 5.20 seems to suggest efficiencies of 24.2% for Electrification and Plant, while the SBP Figure 5.4 and back-up spreadsheets indicate 17.7%.

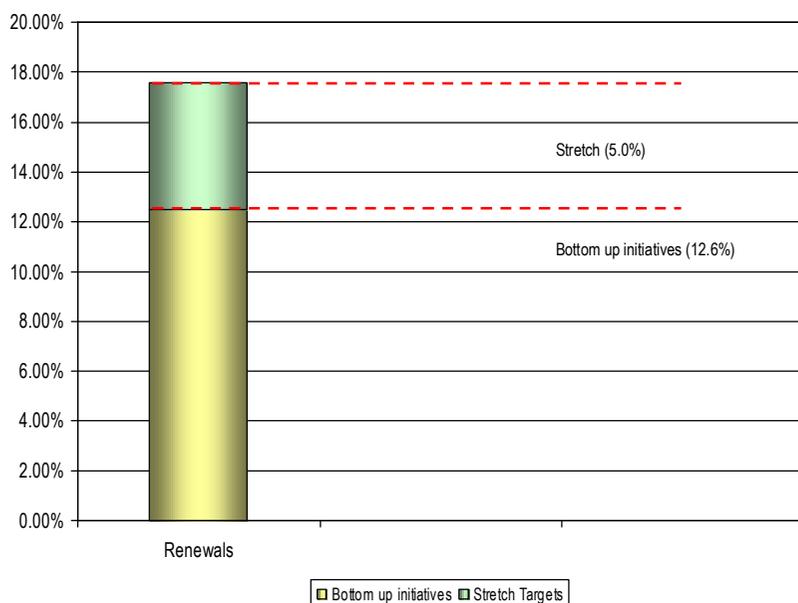
Similar to the process followed in respect of maintenance efficiencies, NR’s approach to establishing the bottom-up efficiencies levels was to ask its project managers what efficiencies they could make. This is not necessarily a robust methodology as it is likely to produce less ambitious targets – where NR managers will be tasked with delivering efficiency targets that they have set themselves, it is possible that they will have been prudent in their assessment and will not have set a stretch target.

Track efficiencies are much lower in percentage terms than the other renewal categories, despite the number of initiatives listed by NR in the SBP. This may be because the initiatives are long-term and do not bring many benefits in CP4.

NR has indicated that it has noted external reports (such as LRR/EWS) that have suggested that NR should be achieving better efficiencies through the use of particular methodologies. NR has indicated that in most instances it is planning to use the methodologies identified in the reports, and so will ultimately achieve those efficiencies, but it has modelled a different timing for their introduction. The result is that in NR’s modelling the efficiencies are achieved more slowly. It is unclear whether the timings projected by NR or the external report writers are more realistic, but it is clear that were it realistic to bring forward NR’s track efficiencies, greater efficiencies would be achievable in CP4.

6.7 Stretch

NR's target of 17.6% over CP4 is made up of a target of 12.6% from specifically identified initiatives and the balance being classed as stretch. NR has stated that the total of 17.6% was an 'informed' management view of the efficiencies the business is able to deliver over CP4. The stretch target is effectively the balancing number to ensure that each business area delivers the 17.6% target.



There are a number of areas of renewals, including, for instance, unit costs analysis, where NR appears to concede that there is potential for greater efficiencies, but which have not been factored into the SBP. Here, NR has assumed it is unlikely to be practical to achieve the full efficiency suggested by Best Demonstrated Practice (BDP) in all cases, so has assumed a range of 50-75% of BDP or second BDP. However, the SBP states that NR

recognises that BDP will evolve continuously and so it intends to continue to use the internal benchmarking approach to drive further business efficiencies – these efficiencies are not included in the bottom-up figures.

Similarly, the SBP states that the alignment of the scope of renewal schemes with current and future business needs will continue in CP4. NR has been unable to quantify the savings crystallised by this, but in many cases the opportunity to right-size the infrastructure was considered when the budget for the scheme was initially drawn up. This suggests that there may be room for improvement in the efficiencies assumed.

Impact of applying stretch to Renewals post bottom up initiatives							
Maintenance £m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 Total
Pre Stretch	-	2,141	2,142	2,081	2,021	1,994	10,378
Initiative (%)	-	4.4%	2.7%	2.5%	2.0%	1.8%	12.6%
Initiative (£m)	-	97.4	64.7	56.7	43.3	43.3	305.3
Stretch (%)	-	0.6%	2.3%	1.5%	1.0%	0.2%	5.6%
Stretch (£m)	-	25.9	47.2	35.5	25.7	2.4	136.6
Total (%)	-	5.0%	5.0%	4.0%	3.0%	2.0%	17.6%
Total (£m)	-	123.2	111.9	92.2	69.0	45.7	442.0
Post Stretch	-	2,115	2,095	2,045	1,995	1,992	10,242

Source : EY Analysis

In other areas, such as the world class programme it is unclear whether the benefits expected from particular programmes have been incorporated into NR's efficiency projections.

The SBP also notes that some policies are still being refined and, when complete, a small further reduction in activity levels is anticipated. As this policy work will not be completed until after the final conclusions the SBP states that these embedded asset policy changes

will form part of the efficiency stretch and therefore contribute to the overall efficiency profile.

As such, there are a number of potential efficiencies that are unquantified in the SBP. It may be anticipated that NR is seeking to use the unplanned 'stretch' as a cushion to absorb increases in both these unquantified items and the bottom up initiatives identified by the ORR. On the basis that there is little evidence to support the total figure of 17.6%, particularly as it appears to have applied to all aspects of the business. We do not believe this to be a robust argument.

We believe this would not be a fair and prudent approach, particularly owing to the lack of detail relating to the justification and allocation of the stretch target. It would therefore be inappropriate, in our view, to use the stretch element as a buffer to absorb opportunities identified as a result of the ORR's review.

6.8 Benchmarking Studies

In reviewing the benchmark analysis we have noted the following areas, which suggest that greater efficiencies could reasonably be targeted by NR:

- Within Track Renewals, in its response to the EWS/LRR track benchmarking study, NR has accepted that it is possible that a target of 10% could be achieved; however, NR's business plan includes a target of 7.8% (Figure 5.8) and has not been updated to reflect the accepted argument by LRR;
- In its response to the AT Kearney Procurement review, NR appears to accept the report's findings that NR is "average" in terms of supply chain management capability, putting it at the lower end of a comparable reference group of asset-intensive companies. As a consequence, we would have expected these findings to have been fully incorporated within its target efficiencies. However, NR has stated within its SBP that it has only included a limited number of the specific initiatives within its bottom-up target, the balance being included within the stretch case. This seems inconsistent with its response across other elements of the business.

- The LEK internal benchmarking report states that up to 13% could be made. LEK's review of renewals suggested that replicating the performance of the top two BDP areas would give rise to a potential saving in the range 9% to 13%. As we understand these to be unit costs, we assume that these savings could be delivered in addition to the AT Kearney procurement savings already discussed.
- Adding these all together and retaining the 5.0% stretch target that NR has accepted as being its risk target give a total of circa 22 – 25% rather than the 17.6% put forward by NR. We note that it may not be prudent to add all of these figures and there may be an element of double counting but we believe that the ORR should consider these opportunities further as part of its technical assessment.

6.9 Summary

Further evidence to support challenge includes:

- There is potentially no efficiency being applied to the categories of 'Other Renewals' and 'Discretionary Investment';
- The lack of evidence to support the top-down target of 17.6%;
- The lack of detailed audit trail and the apparent discrepancies between the figures within the NR Financial Models and the SBP;
- The acceptance by NR that elements of external benchmarking studies are acceptable and would lead to an increase in Track renewals efficiencies over that included by NR; and
- The statement by NR's own consultants and external benchmark reports that opportunities for further efficiencies may be possible.

In summary, we do not believe it to be unreasonable to expect that the 17.6% total Renewals efficiency target could be increased.

7.0 Operational Expenditure

7.1 NR's Approach

In the SBP NR states that:

“Non-controllable operating expenditure is an area in which we can generally only seek to influence efficiencies through challenging other organisations rather than drive the efficiencies specifically.

Some significant areas of operational expenditure cannot be assessed by the more usual types of efficiency analysis. Pension costs, for example, are driven by actuarial review and headcount, therefore our ability to drive cost out is limited; insurance costs are heavily influenced by the insurance market and the level of risk the company is willing to expose itself to through its market placed and self-insurance arrangements; and the cost of actually operating the railway on a day-to-day basis is determined by the physical input required to operate the infrastructure control systems we currently employ. For these areas we have developed specific cost profiles for CP4.

Where we have developed specific long-term plans which impact other areas of operational expenditure we included an assessment of their likely quantum in devising our top down assessment. These schemes will continue to evolve through the remainder of CP3 and in some cases may change significantly between now and when they start to deliver efficiencies.”

In its preparation of its cost figures for the SBP, NR has divided operational expenditure into two separate categories:

- Non-controllable operational expenditure; and
- Controllable operational expenditure.

7.2 Non-controllable Operational Expenditure

Non-controllable Operational Expenditure includes the costs borne by NR in respect of the British Transport Police, ORR and Rail Safety and Standards Board, EC4T and Cumulo Rates.

NR views non-controllable Operating Expenditure as an area in which it is unable to drive efficiencies itself. Instead, it states that it “can only seek to influence efficiencies by way of challenging other organisations”. The cost profile for non-controllable OPEX shows that efficiencies are not being forecast in this area. Indeed, the profile shows an increase in costs during CP4 of more than 14%:

Non-Controllable Operational Expenditure							
£m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4
Total	337	342	362	373	381	385	1,842
Saving	-	(5)	(21)	(10)	(8)	(4)	(48)
% Change	-	(1.4%)	(6.0%)	(2.9%)	(2.1%)	(1.1%)	(14.2%)
Source : NR SBP Appendix 1							

7.3 Controllable Operational Expenditure

Controllable operational expenditure represents operational expenditure that is not categorised as “non-controllable”. Within Controllable operational expenditure NR has identified a number of specific initiatives that are expected to deliver efficiencies over CP4.

Appendix 1 to the SBP shows incremental efficiencies in controllable opex of 5.9% over CP4.

Controllable Operational Expenditure							
£m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4
Total	784	775	764	750	744	738	3,770
Saving	-	9	11	15	6	6	46
% Change	-	1.2%	1.4%	1.9%	0.8%	0.7%	5.9%
Source : NR SBP Appendix 1							

However, when controllable and non-controllable operational expenditure are combined and total operational expenditure is considered, it can be seen that total operational expenditure costs are forecast to increase, despite the initiative identified to deliver savings in controllable operational expenditure.

Total Operational Expenditure							
£m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4
Total	1,121	1,117	1,126	1,122	1,124	1,123	5,613
Saving	-	4	(10)	4	(2)	1	(2)
% Change	-	0.4%	(0.9%)	0.4%	(0.2%)	0.1%	(0.2%)
Source : NR SBP Appendix 1							

As with other elements of the SBP, the total OPEX figures do not appear to present a 17.6% reduction in efficiencies and only appear to include the identified bottom-up initiatives. We recommend that the ORR review whether the additional stretch target is captured within NR's SBP projections.

When compared to the approach used by NR in calculating maintenance and renewals efficiencies, the approach followed for controllable operational expenditure is much less detailed. It is primarily a top-down approach, with a relatively small proportion of total operational expenditure costs being projected bottom-up (this detail is not provided in the SBP, but is available in the supporting documents provided by NR).

This predominantly top-down approach was followed because, as stated in the SBP:

"It is not feasible to assess the impact on operational expenditure using an activity specific modelled basis for a period some two to seven years in to the future. Therefore, we have made a top-down assessment of what levels of efficiency we believe it is possible to deliver from the addressable areas of operational expenditure."

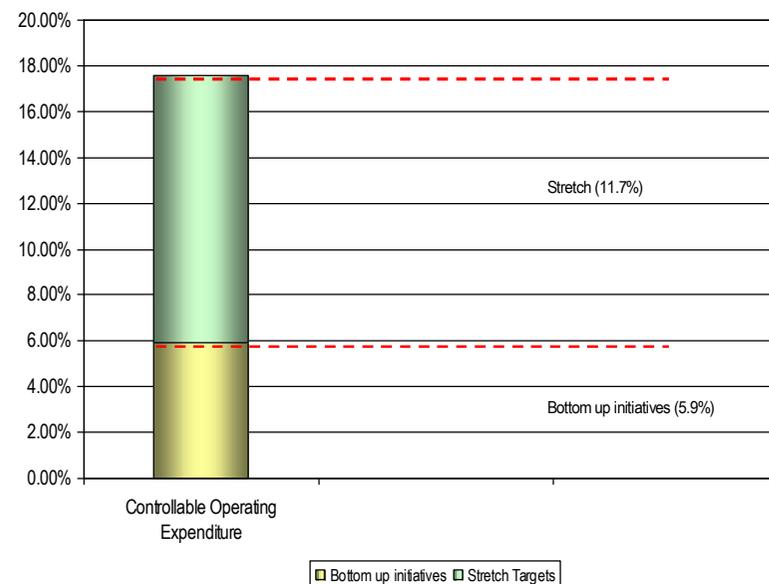
A top-down assessment of possible efficiency savings was therefore the principle methodology used. However, there were some areas, namely pension costs and insurance costs, that NR felt could not be addressed in this way. For those areas, specific cost profiles were developed for CP4.

The supporting schedules show that the savings identified in areas such as signaller productivity, improved specification and procurement, IDAS/ITPS, MOMS/fault teams, insurance, shared services and corporate accommodation represent 5.9% efficiencies, shown in the table below:

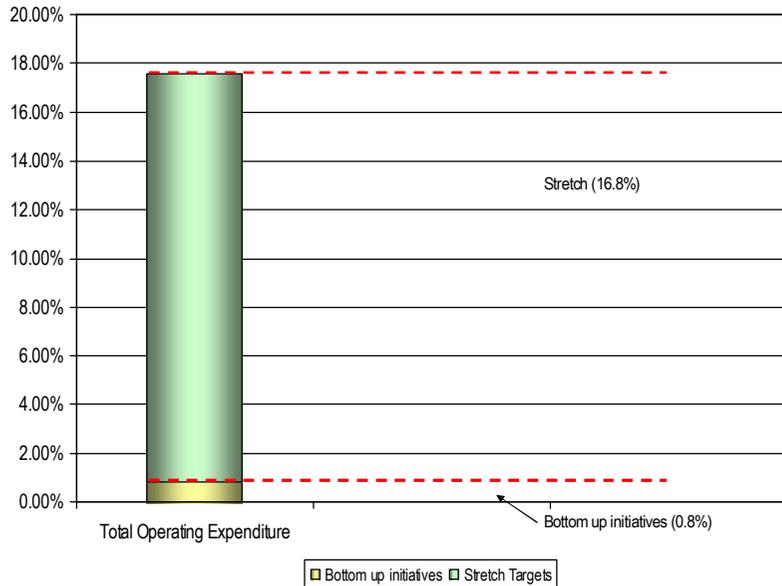
Bottom Up Initiatives (Controllable OPEX)							
£m	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	CP4
Signaller Productivity	-	1.0	1.0	1.0	1.0	1.0	5.0
Procurement	-	0.2	0.2	0.2	0.2	0.2	1.0
IDAS/ITPS	-	0.5	0.5	0.5	0.5	0.5	2.5
MOMS/fault teams	-	3.0	3.0	3.0	3.0	3.0	15.0
Insurance	-	1.2	-	-	-	-	1.2
Shared Services	-	1.2	1.2	1.2	1.2	1.2	6.0
Accommodation	-	2.0	5.8	-	(0.5)	(0.5)	6.8
Other	-	0.0	(0.9)	8.7	0.4	0.2	8.4
Total	-	9.1	10.8	14.6	5.8	5.6	45.9
% Change	-	1.2%	1.4%	1.9%	0.8%	0.7%	5.9%
Source : NR Opex Efficiency (final) document							

7.4 Commentary

The methodology used in developing the efficiencies in operational expenditure is inconsistent with that followed in the maintenance and renewals areas, which use a more detailed approach. As discussed above, in developing the operational expenditure projections NR has for the most part not used a bottom-up approach, instead projecting a broad top-down efficiencies profile onto these costs. This means that the gap between identified bottom-up efficiencies and the top-down imposed profile, which at 0.9% and 5.0% respectively for maintenance and renewals already represents a concern, is even broader at 16.8% in the case of total operational expenditure.



If the identified savings are considered in the context of total operational expenditure, the £46m of savings in Controllable operational expenditure represents less than 1% of the total costs. The diagram below demonstrates how large the stretch would be were NR to be committed to achieving 17.6% efficiencies for all operating expenditure:



For illustrative purposes, were the efficiency profile applied to all operational expenditure, after taking into account individual schemes there is a shortfall of £166m or 14%. In effect, driving efficiencies out of non controllable operational expenditure would deliver almost £70m more in CP4.

As a consequence of this considerable gap, there is a lack of robust backing for the assumptions made.

The fact that non-controllable operational costs are regarded as non-controllable is a concern. The discussion of these costs in the SBP suggests that they have been assumed to be justified by their very nature. The result is that, whilst controllable operational expenditure is forecast to reduce year on year, non controllable operational expenditure is forecast to rise by more than 14% in CP4; however, there is limited evidence to justify this increase – it appears to have been accepted as inevitable by NR. This is despite acknowledging both within its SBP and in developing its target savings for Renewals that influencing suppliers is a possible means for NR to drive efficiencies.

We would recommend that greater focus on minimising this increase be driven in the SBP review process.

If the efficiency profile is applied to controllable operational expenditure only, after taking into account specific controllable operational expenditure scheme efficiencies there is an implied stretch of £99m or 11.7%.

In the supporting financial model provided by NR as evidence of the calculation of the bottom-up figures, staff cost per person are maintained at constant levels throughout the forecast. Cost reductions for these categories are achieved by a reduction in staff numbers.

However, the financial model appears to ignore the additional costs that we would expect to be associated with a reduction in headcount (eg, redundancy and/or reorganisation costs), unless it is intended that the reduction is to be achieved through natural attrition. If this were not the case then we would expect further costs to be incurred.

7.5 Benchmarking Analysis

In reviewing the benchmark analysis we have noted the following issues:

- The benchmarking studies do not cover all areas of operational expenditure – for example, regulation costs were not benchmarked, while only £16m of the total £50m HR costs was benchmarked. As such, it is open to question whether the benchmarking carried out can be considered representative of NR’s operational

expenditure. Failure to benchmark all costs raises concerns over the robustness of those cost areas that have not been benchmarked.

- The KPMG benchmarking study of HR, Finance and IM functions against best practice companies appears to have been taken as directly comparable by NR. However, NR's corporate structure as a non-profit distributing company would suggest that costs may not be directly comparable with the private companies benchmarked by KPMG.
- NR maintains the rail network for the benefit of its stakeholders including its users. As such, it is accountable in principle to its stakeholders; however, as it has neither shareholders nor a requirement to distribute a dividend, NR does not have the same impetus to drive profitability that a plc has. The result is a potential deficit in efficiency. However, as part of its governance arrangements, NR has to comply with a number of regulatory demands, and bear the associated costs, that a plc would not face. From that perspective, NR may be expected to be less efficient than the companies against which it is benchmarked, however, we do not anticipate these costs to be material when compared to the wider network costs.
- However, in addition to this lack of impetus on profitability, there are other ways in which NR's governance structure could give it a different cost structure to that of the best practice companies KPMG benchmarked it against. For instance, NR does not face the same regulatory regime as a plc and so administrative costs, such as accounts preparation, might be expected to be different. Also, NR's insurance is largely outsourced (NR has indicated that its insurance broker fees are not comparable with external companies due to the level of outsourcing). It is unclear to what extent the benchmarking was normalised to take these regulatory and administrative differences into account.
- NR does not appear to have carried out any benchmarking of its operational expenditure on a regional basis. We would have expected such a benchmarking exercise to have informed the SBP.

7.6 Summary

In summary, the evidence and proposals presented for Operating Expenditure are weak with little or no justification to support the figures. NR's acceptance that it has no control

over what it terms non controllable operational expenditure is inconsistent with the argument made for Renewals, where the efficiency initiatives include a number of steps taken to influence external contractors to offer better prices to NR. Furthermore, the allowed increases in non controllable operational expenditure exceed the identified initiatives for controllable operational expenditure.

Further evidence to support a higher level of efficiency improvement target includes:

- The assumption that non controllable operational expenditure cannot be influenced suggests that any steps to influence costs in this areas could lead to additional efficiencies in an area that represents a significant proportion of NR's budget.
- Benchmarking studies do not cover all areas of operational expenditure. The areas that have not been benchmarked may offer additional opportunities for efficiencies that have not been identified in the preparation of the SBP.
- There may be additional operational efficiencies to be made that would not be identified by external benchmarking studies on account of the differences between NR's governance structure and that of the private companies benchmarked against.

8.0 Benchmark Review

In preparing our report, we reviewed a number of the benchmarking studies that NR has used to inform the development of the efficiencies identified and discussed in its SBP, together with the documents produced by NR in response to those studies. In this section we provide details of NR's responses to the studies and our own brief commentary on those responses.

EWS	NR Response to study	Comment
LEK Class 1	<p><i>“NR does not believe that the differing costs can be readily analysed in an incremental way in this case. The railways in the US and Britain are entirely different. In particular, the overall tonnage conveyed tends to be higher but significantly lower speeds which causes less degradation than lower tonnage at higher speeds; the track uses a much higher percentage of wooden sleepers which lend themselves more easily to individual renewal; and there is a much lower frequency of trains in the US.....which, in turn facilitates a piecemeal approach to renewals. In addition, it enables the network to be optimised for freight rather than as a mixed network. We therefore do not believe that conclusions can be drawn from this analysis on the overall scale of savings. We recognise the importance of learning from other railways, but believe that European railways provide a more appropriate comparison.”</i></p>	<p>NR has argued that the railways in the US and Britain are entirely different. It justifies this view by highlighting that the tonnage carried and speed travelled vary significantly which in turn leads to a different renewal and maintenance strategy. This appears to be merit in this argument from NR, however, it may not explain all the difference between the US and Britain. We recommend that the ORR technical review considers this argument further.</p> <p>We note that NR has commissioned consultants to carry out a further study to better understand the differences between the UK and Europe which we would expect would facilitate developing greater evidence to enable NR to deliver further efficiencies.</p>
LRR Track Renewals	<p><i>“the [LRR] report proposed a number of potential improvements in our approach, such as the implementation of a track occupancy permit system and modular S&C renewals, most of which are reflected in our bottom up efficiency plans. However, the report also suggested that we could achieve overall savings of up to 33 per cent in plain line track renewals costs and 10 per cent in S&C renewals (non-modular). In making this conclusion we believe LLR started from the position of our efficiencies delivered to 2006/07 rather than our projected outturn efficiency for the end of CP3. In doing this we believe that the analysis effectively double-counts a significant level of efficiency to be delivered in the last two years of CP3. Correcting for this...would reduce the claimed 33 per cent efficiency for CP4 to around 10 per cent, which is broadly consistent with the track initiatives identified earlier in this chapter.”</i></p>	<p>The argument for not accepting the 33% target proposed within the LRR Track Renewals report appears reasonable. We note that NR states within its SBP that it accepts that a 10% saving in Track Renewals is possible. However, NR's business plan only includes a target of 7.8% (Figure 5.8) and has not been updated to reflect the accepted argument by LRR.</p> <p>We believe this to be a material difference when considering that total track renewals forecast in CP4 exceed £3.4bn (Appendix 1) and could lead to an additional £20m per annum saving depending upon when the shortfall was made up.</p>

<p>DTM Consulting</p>	<p><i>“This [the DTM analysis] was based on costs included in the first version of the infrastructure cost model which underpinned the Initial Strategic Business Plan. We recognise that there were a number of assumptions that needed further development and have addressed the concerns raised in the second version of the ICM which underpins this plan. In particular, this plan now reflects fully the actual differentiation in our asset policies between freight only lines and other route categories.</i></p> <p><i>However, there are some areas where we do not agree with the analysis, particularly for staff costs which appear to be lower than those which we experience, we therefore think that there may be an insufficient allowance made for sickness, leave or training.”</i></p>	<p>The NR figures presented include elements that have been updated since the DTM report was carried out. Notably, the update to version 2 of the ICM included aspects raised within the DTM report. However, NR does not agree wholly with all aspects of the review, particularly its estimates of staff costs.</p> <p>NR do not believe there to be sufficient justification to make amendments to NR’s targets based upon this report.</p> <p>We recommend that the ORR’s technical assessment includes an assessment to confirm that NR’s adoption of ICM2 has addressed the concerns raised by DTM.</p>
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AT Kearney	Proposed change to NR figures	Comment
OMR	<p><i>“A T Kearney was engaged to undertake an independent bench-marking review of our procurement capability and strategy. This established that Network Rail is “average” in terms of supply chain management capability. This puts us at the lower end of a comparable reference group of asset-intensive companies.</i></p> <p><i>Their approach involved close analysis of our delivery and efficiency plans and detailed discussions with our asset and contractual teams. Once their initial findings crystallised these were cross checked and fed back into the asset and procurement teams. In many instances, the initiatives raised by the A T Kearney team were subsequently included in our bottom-up efficiency models.</i></p> <p><i>We have included in our supporting documents an analysis of which of the initiatives have been included in the bottom up models and therefore which contribute to the efficiency stretch.”</i></p>	<p>Our interpretation of NR’s response is that it has accepted the findings of the AT Kearney report and, as such, these findings should have been fully incorporated within its target efficiencies. However, NR has only included a limited number of the specific initiatives, stating that the balance has been included within the stretch case.</p> <p>In keeping with the argument made earlier in this report we do not believe this to be an appropriate or acceptable approach. NR has stated that the findings of AT Kearney are already included within its efficiency targets. By definition, if the AT Kearney analysis has identified specific initiatives that would deliver the proposed saving, then these cannot legitimately be classed as stretch.</p> <p>We recommend that the ORR’s technical assessment includes an assessment to confirm that NR’s adoption of the full AT Kearney recommendations is included within its submission. Furthermore, the ORR should consider whether the initiatives should be moved from stretch and either the stretch target is recalculated to provide the same total or the total target for renewals is increased to compensate.</p>

KPMG & Compass	Proposed change to NR figures	Comment
KPMG – Finance & HR	<p><i>“In 2006, we commissioned KPMG to benchmark our human resources and finance functions against best practice companies. The overall conclusion was that the level of costs in these functions is reasonable (i.e. that they are efficient) but that resources should be used more effectively to provide an efficient service to the rest of the business. However, while we have not made specific assumptions for each function, our opex efficiency assumption implies that we can achieve further efficiencies in these functions.”</i></p>	<p>We have interpreted this to suggest that KPMG believe that NR is relatively efficient in this area but has identified additional areas for minor improvements. NR argues that whilst it has not explicitly modelled the savings identified in the KPMG review they are included within the OPEX efficiency stretch targets.</p> <p>We recommend that the ORR's technical review includes an assessment to confirm that the areas where KPMG has identified additional improvements are included within NR's efficiency proposals.</p>
Compass – IT Systems	<p><i>“We also commissioned a report by Compass in 2006, to review much of our information management function. This also concluded that there were limited efficiency savings to be achieved, although again this plan implies further efficiency in CP4.”</i></p>	<p>Whilst the Compass review highlights that NR's total costs are 7% lower than the reference group this could arise from the lower quality targets at NR compared to the reference group. There is no evidence to identify how the additional savings are delivered through the outsourcing of certain functions.</p>

UIC	Proposed change to NR figures	Comment
<p>European Benchmarks</p>	<p><i>“the UIC has carried out comparative analysis of infrastructure costs between a number of European railways. The results indicate a significant gap between Network Rail and the lowest cost railway. It is difficult to understand the precise causes of these apparent gaps as the analysis is based on high level data. While the analysis has normalised the data for some structural factors, there remain considerable differences between railways that have not been taken into account. There are also considerable differences in the way information is captured. For example, maintenance, renewal and enhancement activities are not treated consistently in all countries; there are differences in the accounting treatment of expenditure; and changes in exchange rates may also have a significant effect.</i></p> <p><i>One area which is not immediately obvious from this analysis is the very long term trends (i.e. in excess of 10 years) and what these may indicate. For example, the GB network is currently addressing the legacy of many years of systematic under-investment in the years leading up to the Hatfield accident. It is possible that some countries may currently be investing at unsustainably low levels and could be approaching a step increase in costs similar to that which occurred on the UK network around 2000. Indeed, there is some evidence to suggest that this is the case.</i></p> <p><i>We recognise the importance of obtaining a more detailed understanding of these differences and, as we described in the bottom up analysis, increasingly we are carrying out detailed benchmarking of our activities with other European railways. These are much more useful than high-level comparisons since we are able to understand what drives real differences and learn from each other.”</i></p>	<p>NR acknowledges that there appears to be a significant gap in the cost of its services and the more efficient rail operators in Europe. However, it highlights that there is little reason or justification for this difference on which to expect NR to close the gap.</p> <p>The target could be used as a top level estimate of the high end range that NR could be expected to deliver, however, NR makes reference to the comparison of costs within a cycle and raises doubts that the time periods are comparable.</p> <p>That said, NR has a considerable amount of time between now and the end of CP4 to further analyse these results such that methods of delivering this quantum of savings could be delivered.</p> <p>NR has appointed consultants to investigate further the reason for the gap between NR’s costs and those of European railways.</p> <p>NR has acknowledged that there is a gap and that it will take steps to close it. On that basis, a key consideration is how quickly NR can identify the causes of the gap and implement measures to close it. Given the potential scale of the gap, measures taken to identify and close the gap as quickly as possible would lead to significant efficiencies. It is unclear whether such efficiencies could be driven early enough to have an impact on CP4, but it will be important to drive this process forward promptly.</p>

LEK	Proposed change to NR figures	Comment
Internal Benchmarking	<p><i>“We commissioned LEK to carry out a study benchmarking our internal activities between different geographical areas and delivery units. This covered elements of both maintenance and renewals. The analysis differentiated variances between unit cost performance as attributed either to structural factors or internal efficiency factors. In principle, these efficiency factors are available over the whole spectrum of internal practice. We are using this benchmarking work as the basis of future monitoring and ongoing improvement plans.”</i></p>	<p>Meaningful benchmarking analysis on maintenance was not possible because of the significant issues in the underlying data meant it was impractical for benchmarking.</p> <p>The review of renewals suggested that replicating the performance of the top two Best Demonstrated Practice areas would give rise to a potential saving in the range of 9% to 13%. We understand these to be unit costs, it is therefore possible that these savings could be delivered in addition to the AT Kearney procurement savings already discussed; however, we recommend that the ORR technical review confirms this.</p> <p>The NR business plan does not explicitly include these savings within its figures, stating rather that it will monitor its actual performance whilst considering these findings.</p> <p>We would suggest that not seeking to deliver these potential efficiencies within CP4, is in itself, inefficient. Furthermore, we understand that the LEK analysis only covered approximately 30% of NR’s costs. This highlights that further efficiencies may have been identified if a more thorough study had been undertaken.</p>

Brian Abbott / Nortrak	Proposed change to NR figures	Comment
Maintenance & Renewals	<p><i>“EWS and Network Rail jointly commissioned Nortrak to compare track maintenance and renewal practices between Britain and Canada. The work was carried out by a former Canadian National track engineer. The report proposed a number of potential improvements in our approach, most of which are reflected in our bottom up efficiency plans and some of which are already being rolled out on some parts of the network...However, the report made a number of conclusions with which we do not agree...the report was based on visits to three sites only and it is therefore necessary to be cautious in drawing network-wide conclusions from such a small sample.”</i></p>	<p>The Nortrak review highlighted the potential for significant savings. Some of which NR state are included within the business plan efficiencies, however, these are not explicitly stated. This requires further consideration by ORR and NR.</p>

LRR	Proposed change to NR figures	Comment
Possessions Study	<p><i>“This study commissioned by ORR examined the different possessions regimes being used across a number of railway infrastructure companies in countries:</i></p> <p><i>ProRail, Strukton and BAM in the Netherlands;</i></p> <p><i>SBB and Sersa in Switzerland;</i></p> <p><i>DB Netz in Germany; and</i></p> <p><i>Railcorp in Australia.</i></p> <p><i>The overall conclusions of the study were that the way in which possessions are structured and taken is dependant on what sort of a railway is being operated and the level of service that is required. Key elements of good practice drawn out were the need for exceptional quality of planning at both possession and project level; simple and predictable possessions management; active management to remove risk and minimise contingency as far as possible, and the application of the appropriate level of mechanisation. The findings of this study are all being considered in the planning of efficient engineering access and the seven-day railway, which is discussed as an option in this plan.”</i></p>	<p>The review highlights the importance of proper planning. NR accepts this but has not explicitly identified schemes which will address these issues within the SBP. The NR business plan does not explicitly include these savings within its figures, stating rather that it will monitor its actual performance whilst considering these findings.</p> <p>The recent West Coast Possessions overruns highlight that, to date, NR has not met the key elements required and places much greater emphasis on it delivering in this area. Furthermore, the overruns also highlight that NR has significant scope for improvement in this area which should translate into greater efficiency savings.</p>

<p>Signalling</p>	<p><i>“Lloyds Register Rail was commissioned by ORR to benchmark the cost of Network Rail’s signalling renewals costs against those of a number of European railways.....</i></p> <p><i>.....The broad conclusion from this analysis was that Network Rail’s resignalling schemes were more expensive than those against which we were benchmarked. However, if the signalling efficiencies achieved to date and our efficiency trajectory for the remainder of CP3 are taken into account then the difference is significantly reduced and we are broadly in line with the prices at the upper end of the sample. More significantly, this study used a very small sample of widely different projects and therefore no firm conclusions can be drawn from the work other than there are differences which need to be investigated further.”</i></p>	<p>NR accepts that they are still at the high end of benchmarks based on a sample which we have interpreted as a passive acceptance that it is inefficient in this area. NR go on to state that they are not aware of any other avenues that could be explored to deliver greater savings, however, we do not accept that a lack of current knowledge in this area is a legitimate justification for a less challenging efficiency target.</p> <p>NR’s SBP states that recommendations of the AT Kearney report have been included in the bottom-up asset efficiency plans and form part of the stretch; it also states that this excludes the suggestion of target pricing as the current system is well embedded and a change might import risk.</p>
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LEK/Oxera	Proposed change to NR figures	Comment
LEK/Oxera	<p><i>“The ORR has developed an initial view of top down efficiency savings based on a report prepared in December 2005 by its consultants, L.E.K. / Oxera. This focuses on efficiency in terms of catch-up and frontier shift, with catch-up relating to the elimination of identified inefficiencies in our cost base and frontier shift representing the natural drift in the costs of a notionally efficient infrastructure company.</i></p> <p><i>Collating new information now available, we have built on the methodological foundation developed by the L.E.K. / Oxera report to refine the maximum plausible range of 2-8%. In the light of this new information, we believe that the reasonable and appropriate range for efficiency target-setting based on this top-down methodology is 2-3.2% per annum”</i></p> <p><i>“We ... believe the upper-limit of 3.2% to be an absolute maximum that can be implied by this methodology as it is derived from only the factors that we are confident in quantifying, and includes no assumptions, estimates or adjustments for those factors that we believe to be important but which we are unable to quantify fully.”</i></p>	<p>It is unclear why 3.2% should be regarded as the absolute maximum as it is derived from areas that NR is confident of quantifying.</p> <p>NR’s reduction in the target assumes that a number of areas of additional expenditure are “justified” as they are “largely beyond management’s control” and were “necessary in order to deliver the outputs required of the railway infrastructure”. As such, it would appear that NR may have missed opportunities to drive these costs down.</p> <p>We understand that the ORR has commissioned Oxera to update its study to take into account recent developments and NR’s response.</p>