



Annual efficiency and finance assessment of Network Rail 2016-17

October 2017

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Feedback

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Acronyms and abbreviations

Acronyms/ abbreviations	Meaning
AICR	Adjusted Interest Cover Ratio
AMEM	Asset Management Excellence Model
Arup	Ove Arup & Partners Limited
BTP	British Transport Police
CAM	Civils Adjustment Mechanism
Capex	Capital expenditure
CaSL	Cancellations and Significant Lateness
CP4	Control Period 4 (1 April 2009 - 31 March 2014)
CP5	Control Period 5 (1 April 2014 - 31 March 2019)
CP6	Control Period 6 (This is likely to be 1 April 2019 - 31 March 2024)
DfT	Department for Transport
DP	Network Rail's delivery plan (operational work plan of volumes & milestones)
ECAM	Enhancement Cost Adjustment Mechanism
EGIP	Edinburgh Glasgow Improvement Programme
ERTMS	European Rail Traffic Management System
FIM	Financial Indemnity Mechanism
FPM	Financial Performance Measure
GRIP	Governance of Railway Investment Projects (how Network Rail manages projects)
HLOS	High Level Output Specification
LNE	London North East route
NOS	Network Operating Strategy
ONS	Office of National Statistics
OSM	Operations, support and maintenance
OSMR	Operations, support, maintenance and renewals
OPEX	Operating expenditure
ORBIS	Offering Rail Better Information Services
ORR	Office of Rail and Road
OSTI	Other single till income
PPM	Public Performance Measure
PR13	Periodic Review 2013 (covering CP5)
PR18	Periodic Review 2018 (covering CP6)
RAB	Regulatory Asset Base
RAGs	Regulatory Accounting Guidelines
REBS	Route Level Efficiency Benefit Sharing mechanism
RPI	Retail Prices Index (we use the 'RPI CHAW')
SBP	Network Rail's Strategic Business Plan
SCADA	Substation Control And Data Acquisition
SoFA	Statement of Funds Available
TOCs	Train Operating Companies (passenger)

Summary

Purpose of our assessment

This document reports on Network Rail's financial performance across Great Britain as a whole and separately for Scotland and for Wales, and summarises the financial performance of Network Rail's routes.

There are several ways in which financial performance can be calculated and presented¹. These choices include:

- (a) comparing either to Network Rail's annual budget (as we do in the Network Rail Monitors²) or to our 2013 Periodic Review ('PR13') determination³;
- (b) making a simple comparison of spend or using our regulatory financial performance measure (FPM);
- (c) including or excluding certain types of income and expenditure that are not controllable, e.g. the cost of traction electricity;
- (d) adjusting for the volume of work not done⁴;
- (e) showing the FPM variances gross, or net of adjustments made in line with the RAB sharing mechanism⁵; and
- (f) including⁶ or excluding the adjustments made for missed regulatory outputs in FPM.

In this assessment, to be as informative as possible, we generally compare to our PR13 determination, exclude income and expenditure that is not controllable, adjust for the volume of work not done and show the FPM numbers both gross and net of RAB sharing mechanism adjustments and including or excluding regulatory output adjustments.

Comparison to Network Rail's budget

We reported on Network Rail's performance against its internal budget in our Monitor⁷. There we showed that, in 2016-17, the third year of control period 5 ('CP5'), for Great Britain, Network Rail underspent its net budget of £5,377m by £499m. Taking into account the value of work not done

¹ Financial information in our assessment is shown in 2016-17 prices, with the exception of the debt and borrowing numbers, which we present in nominal (cash) prices. There might be some differences in numbers due to rounding.

² These are available at: [ORR's Network Rail Monitor](#)

³ This is available at: [PR13 Final determination of Network Rail's outputs and funding for 2014-19](#)

⁴ We make these adjustments because Network Rail should not benefit by not delivering its work, e.g. renewals.

⁵ We do this by limiting the financial reward/penalty on renewals and enhancements to generally 25% of the out/underperformance. This is of less relevance now Network Rail has been reclassified as a public sector body, so we now tend to use the gross figures more than the net ones.

⁶ We make these adjustments because Network Rail should not benefit by not delivering its outputs, e.g. train performance.

⁷ The Monitors covering the full year 2016-17, were published on 20 July 2017 and are available at: <http://orr.gov.uk/publications/reports/network-rail-monitor>

which will be delivered at a later date, for the work delivered, Network Rail's gross underperformance against its own budget was £563m.

Key points

The key points to note from our assessment are:

(a) Network Rail has become less efficient

The efficiency of Network Rail's core business activities (i.e. operating, maintaining and renewing the network) has declined by 4.4%⁸ over the first three years of CP5⁹. In contrast, our PR13 determination assumed a 13.7% improvement. In other words, costs have risen but we expected them to fall. The company is currently forecasting that it will be 3.9% less efficient by the end of CP5 than when it started CP5, compared to our PR13 assumption of a 19.4% improvement. We estimate that the cost of Network Rail not delivering as much efficiency as we expected is around £3.9bn, driven largely by higher than expected renewal costs.

(b) Financial performance has deteriorated

As explained above, there are different ways of presenting Network Rail's financial performance (see paragraphs 1.51 and 1.52 and Table 1.8). The two main comparisons to our PR13 determination are:

- (i) on a 'net' basis, i.e. net of RAB sharing mechanism¹⁰ and regulatory output adjustments. On this basis, financial underperformance was £1.0bn for 2016-17 and £2.2bn cumulatively for the three years of CP5; and
- (ii) on a 'gross' basis, i.e. before RAB sharing mechanism and regulatory output adjustments. On this basis, financial underperformance was £1.7bn for 2016-17 and £4.2bn cumulatively for the three years of CP5.

This means that Network Rail will be in a worse position financially at the start of control period 6 ('CP6') than we expected, increasing the financial pressure on the company.

⁸ Network Rail's efficiency for the 2016-17 financial year is 0.6 percentage points better than we reported in our Monitor (-5.0%), while the end of CP5 forecast is 2.4 percentage points worse than reported in our Monitor. This is because Network Rail now has a more detailed understanding of its latest business plan and whether some of its underspend is deferral or efficiency.

⁹ This measure compares actual operations, support, maintenance and renewals expenditure in 2016-17 with expenditure in 2013-14 (the last year of CP4) adjusted for the level of activity undertaken and other factors. After these adjustments, expenditure in 2013-14 was £4,727m (in 2016-17 prices). Actual expenditure in 2016-17 was £4,937m. Expenditure has therefore risen by £210m (£4,937m - £4,727m). Expressed as an efficiency percentage this is -4.4% (-£210m / £4,727m).

¹⁰ We do this by limiting the financial reward/penalty on renewals and enhancements to generally 25% of the under/outperformance. So, for example, the cumulative gross renewals underperformance is £2.7bn, so we limit it to 25% (£2.7bn x 25% = £0.7bn).

(c) There is a backlog of work which is increasing

Compared to our PR13 determination, work to the value of £1.6bn was deferred from 2016-17 to a later date including £0.8bn of renewals, £0.7bn of PR13 enhancements and £0.1bn of associated schedule 4 compensation payments for track possessions. Across the first three years of CP5, work to the value of £3.4bn has been deferred to a later date (£1.9bn of renewals, £1.4bn of PR13 enhancements and £0.1bn of associated schedule 4 payments). Network Rail currently forecasts that by the end of CP5 £3.9bn of renewals work will be deferred to a later date, which may affect the sustainability of the network and increase costs, in the medium and longer term.

For the work delivered in the first three years of CP5, Network Rail has financially underperformed against our PR13 determination by £2.7bn on renewals (adjusted to £0.7bn in line with the RAB sharing mechanism) and £0.7bn on PR13 enhancements (adjusted to £0.1bn in line with the RAB sharing mechanism).

(d) Increasing financial pressure

Network Rail's debt increased by £4.6bn to £44.8bn in 2016-17¹¹. The company has fixed borrowing limits with the Department for Transport for CP5. The latest business plan for Great Britain has £0.3bn of financial headroom, which means that the company expects that it will not need to use £0.3bn of the borrowing facility. In light of the risks to the company's financial forecast, this headroom is low. In particular, the company may not achieve its planned efficiencies; movements in interest rates and inflation are uncertain; the value of asset disposal proceeds are also uncertain and are likely to be lower than originally forecast and cash may be needed to fund movements in the value of its financial instruments. Network Rail needs to further develop its contingency plans to address these pressures.

Effect on PR18

Network Rail's financial performance has impacted on the governments' decisions on the 2018 Periodic Review ('PR18') Statements of Funds Available (SoFAs). Decisions were not taken by the planned date of 20 July 2017 and instead will be taken by 13 October 2017. In particular, more assurance was needed over how much efficiency improvement Network Rail would deliver in the future. Network Rail has provided further analysis and we:

- (a) consulted on how to improve Network Rail's renewals efficiency, setting out where we intend to make changes to our approach on the assessment and monitoring of efficiency¹²;

¹¹ Net of cash balances. Network Rail raises debt to fund those business activities not funded by government grant or access charges. Since September 2014, Network Rail no longer raises new debt on the capital markets and instead borrows from the Department for Transport (DfT).

¹² For more information see our [consultation and responses](#)

- (b) commissioned an independent review to see whether Network Rail's efficient expenditure plans will deliver on time, are robust and sufficiently challenging. The findings will be published shortly on our website; and
- (c) held an industry seminar on Network Rail's renewals efficiency to bring together an industry perspective on what needs to change.

We will be publishing a paper on financial monitoring and efficiency early in 2018. We also intend to publish a paper later in 2017 on changes to the financial framework in CP6.

Routes

We are using PR18 to take route regulation further in CP6. Route settlements will create an opportunity for comparisons and accountability for performance, with routes accountable for delivering specific outputs, with responsibility for their financial performance, more akin to autonomous commercial companies. But we are not waiting for CP6 to take advantage of this new structure and we will start transitioning in the year ahead.

In this document, we compare route income and expenditure to both our PR13 determination and to income and expenditure in 2015-16. We consider the key expenditure categories (network operations; schedule 8 payments; maintenance; renewals and the major elements of renewals: track, signalling and civils). We also comment on the routes' other single till income and financial performance.

Introduction

1. Our annual efficiency and finance assessments are intended to help customers, funders and other interested parties gain a better understanding of Network Rail's financial performance compared with the financial assumptions that we set out in our 2013 periodic review (PR13¹³) of Network Rail's access charges for the five-year period from April 2014 to March 2019 (control period 5 - CP5).
2. This 2017 publication of our annual efficiency and finance assessment of Network Rail reports on the main aspects of the company's finances over the first three years of CP5, as reported in Network Rail's regulatory financial statements covering the year from 1 April 2016 to 31 March 2017. This assessment also provides detailed support for our high-level Network Rail Monitors. It covers income and expenditure, financial performance, efficiency, borrowing, net debt, Regulatory Asset Base (RAB), financing costs and financial indicators.
3. We compare Network Rail's actual financial performance with our PR13 determination in several ways, starting with a simple comparison of income and expenditure in 2016-17 and for the control period to date (i.e. the first three years of CP5: 2014-15, 2015-16 and 2016-17). We also compare actual income and expenditure in 2016-17 to 2015-16.
4. We also carry out an analysis of regulatory financial performance, which covers most areas of Network Rail's expenditure, and we make adjustments for work not done (deferrals of work) and missed outputs to give an overview of how much it is costing Network Rail to deliver its outputs compared to our PR13 determination. This identifies the volumes actually delivered in 2016-17, and so far in the control period, and measures how much Network Rail has spent in delivering these volumes against the money we had assumed in our PR13 determination.
5. We additionally report on the progress Network Rail is making against the efficiency assumptions included in our PR13 determination and the forecast for the end of the control period. This analysis covers Network Rail's expenditure on operations, support, maintenance and renewals.
6. We compare route income and expenditure to both our PR13 determination and to income and expenditure in 2015-16. We consider the key expenditure categories (network operations; schedule 8 payments; maintenance; renewals and the major elements of renewals: track, signalling and civils). We also comment on the routes' other single till income (OSTI) and financial performance. We generally consider percentage changes to avoid too much focus on the largest routes such as London North East and London North West, which, due to their size, will often be the source of the biggest variances in monetary terms.
7. In our 2016-17 Monitors, the main comparisons of Network Rail's financial performance were against Network Rail's budget for 2016-17, not against our PR13 determination.

¹³ In PR13, we determined the outputs Network Rail was required to deliver and the funding that it needed for CP5.

8. In our analysis, we frequently refer to “under/over spends” and “out/under performance”. By “under/over spends” we mean a simple variance between two numbers, so, for example, if Network Rail has spent more than our PR13 assumption that would be described as an overspend. We then analyse that overspend and decide how much of it is made up of neutral issues, such as when there is a timing difference where Network Rail has moved work (and hence expenditure) from one year to another without adversely affecting the sustainability and performance of the network. Adjusting for these neutral issues, we understand how much of the under or overspend is because it has not performed at the level of efficiency that we assumed – in simple terms this is called “out or under performance”¹⁴.
9. This report covers Network Rail's financial performance across Great Britain as a whole. It also looks separately at Scotland and Wales. We require Network Rail to publish information at a route level to allow us to develop a more detailed view of Network Rail's financial performance as shown in Chapter 4.
10. In this document, we also report on some of the challenges Network Rail is facing. These issues have implications for Network Rail's plans for CP5 and for control period 6 (‘CP6’), particularly as it is spending more money in CP5 than it originally expected and it has constraints on its borrowing with separate fixed nominal borrowing limits for England & Wales and Scotland. In view of those challenges, Network Rail has updated its plans for CP5. Meanwhile, the continuing high level of deferrals, in particular renewals, makes it harder for Network Rail to adequately increase renewals volumes in the future to compensate.
11. Network Rail's financial performance has impacted on the governments decisions on the 2018 Periodic Review (‘PR18’) Statements of Funds Available (SoFAs). Decisions were not taken by the planned date of 20 July 2017 and instead will be taken by 13 October 2017. In particular, more assurance was needed over how much efficiency improvement Network Rail would deliver in the future. Network Rail has provided further analysis and we:
 - (a) consulted on how to improve Network Rail’s renewals efficiency, setting out where we intend to make changes to our approach on the assessment and monitoring of efficiency¹⁵;
 - (b) commissioned an independent review to see whether Network Rail’s efficient expenditure plans will deliver on time, are robust and sufficiently challenging. The findings will be published shortly on our website; and
 - (c) held an industry seminar on Network Rail’s renewals efficiency to bring together an industry perspective on what needs to change.

¹⁴ Renewals and enhancements expenditure is added to the Regulatory Asset Base (RAB). If Network Rail underspends we allow it to retain the benefit of that outperformance by adding 25% of the value of the underspend to the RAB. Where Network Rail overspends, it will be allowed to add 75% of the overspend to the RAB, unless such overspend can be shown to be ‘manifestly inefficient’ in which case none of it is allowed as a RAB addition. For further explanation see the [CP5 Regulatory accounting guidelines \(RAGs\)](#)

¹⁵ For more information see our [consultation and responses](#)

12. We will be publishing a paper on financial monitoring and efficiency early in 2018. We also intend to publish a paper later in 2017 on changes to the financial framework in CP6.
13. We are using PR18 to take route regulation further in CP6. Route settlements will create an opportunity for comparisons and accountability for performance, with routes accountable for delivering specific outputs, with responsibility for their financial performance, more akin to autonomous commercial companies. But we are not waiting for CP6 to take advantage of this new structure and we will start transitioning in the year ahead.
14. In this document, we compare route income and expenditure to both our PR13 determination and to income and expenditure in 2015-16. We consider the key expenditure categories (network operations; schedule 8 payments; maintenance; renewals and the major elements of renewals: track, signalling and civils). We also comment on the routes' OSTI and financial performance.
15. We will report on Network Rail's financial performance under the route level efficiency benefit sharing (REBS) mechanism in a letter to be published in winter 2017.
16. All financial information in this document is shown in 2016-17 prices, with the exception of the debt and borrowing numbers, which we present in nominal (cash) prices.

1. Great Britain

Income and expenditure

1.1 Table 1.1 shows income and expenditure and other information for Great Britain, in 2016-17 and for the control period to date, compared to our PR13 assumptions, and for 2015-16.

Table 1.1: Summary of key financial information for Great Britain

£m, 2016-17 prices	2016-17			3 years to end 2016-17			2015-16
	Actual	PR13	Variance	Actual	PR13	Variance	Actual
Income	(A)	(B)	C=(A-B)	(D)	(E)	F=(D-E)	
Fixed charge income	392	372	20	1,222	1,163	59	375
Variable charge income	1,119	1,195	(76)	3,348	3,418	(70)	1,128
Other single till income	872	932	(60)	2,521	2,637	(116)	847
Government grant income	4,380	4,359	21	13,056	12,940	116	4,376
Total income	6,763	6,858	(95)	20,147	20,158	(11)	6,726
Operating expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Signaller expenditure	353	297	(56)	1,053	926	(127)	353
Other network operations expenditure	201	130	(71)	555	405	(150)	197
Total network operations expenditure	554	427	(127)	1,608	1,331	(277)	550
Support costs	337	451	114	1,170	1,437	267	403
Traction electricity, industry costs & rates	582	651	69	1,756	1,821	65	593
Network maintenance	1,319	1,117	(202)	3,819	3,458	(361)	1,275
Schedule 4 compensation payments	217	239	22	685	691	6	263
Schedule 8 compensation payments	187	4	(183)	408	13	(395)	108
Total operating expenditure	3,196	2,889	(307)	9,446	8,751	(695)	3,192
Capital expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Renewals	2,774	2,678	(96)	8,964	8,173	(791)	3,145
PR13 Enhancements	3,372	3,724	352	9,294	10,025	731	3,056
Non-PR13 Enhancements	54	0	(54)	430	0	(430)	228
Total enhancements	3,426	3,724	298	9,724	10,025	301	3,284
Total capital expenditure	6,200	6,402	202	18,688	18,198	(490)	6,429
Other expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Financing costs	1,797	1,953	156	4,677	5,366	689	1,431
Corporation tax (received)/paid	2	0	(2)	(2)	4	6	0
Total other expenditure	1,799	1,953	154	4,675	5,370	695	1,431
Total expenditure	11,195	11,244	49	32,809	32,319	(490)	11,052
Other information	(A)	(B)	A-B or B-A				
RAB	61,753	60,014	1,739	n/a	n/a	n/a	58,431
Net debt	44,792	43,335	(1,457)	n/a	n/a	n/a	40,178
Adjusted interest cover ratio	0.74	1.03	(0.29)	n/a	n/a	n/a	0.89
Gearing (net debt/RAB) ¹⁶	72.5%	72.2%	(0.3%)	n/a	n/a	n/a	70.3%

Source: Network Rail's regulatory financial statements

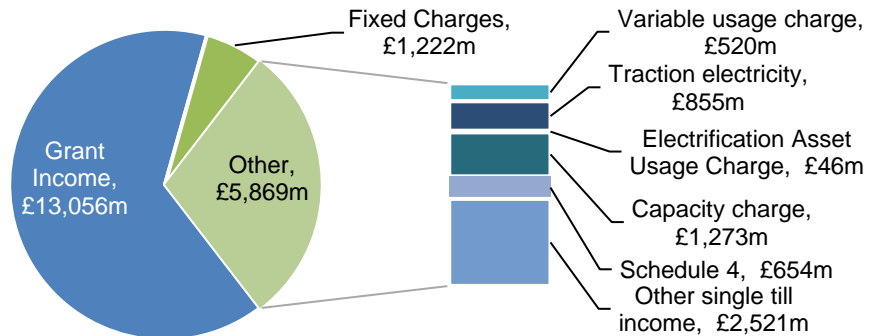
¹⁶ Our PR13 financial model assumed gearing of 69.9%. The difference of 2.3% is due to outturn inflation being different to our assumption.

Income

1.2 Network Rail's income in Great Britain for the three years to 31 March 2017 is shown graphically in Figure 1.1 below.

Figure 1.1: Cumulative income for the three years to the end of 2016-17 in Great Britain

£m, 2016-17 prices



Source: ORR analysis of Network Rail's regulatory financial statements

- 1.3 Network Rail's total income in 2016-17 was £6,763m. This was £95m (1.4%) lower than our PR13 determination. This variance is relatively small because grant income (which is the most significant element of Network Rail's income) and fixed charge income are largely fixed in real terms as part of our PR13 determination.
- 1.4 Grant income (network grants) in 2016-17 was £21m (0.5%) higher than our PR13 assumption. This is because network grants and access charges are indexed for inflation in a different way to how we uplift the income and expenditure assumptions in Network Rail's regulatory financial statements from 2012-13 prices to 2016-17 prices¹⁷. This is also the reason for the £116m (0.9%) cumulative variance for the control period to date.
- 1.5 Network Rail earned £20m more fixed charge income than we assumed in PR13, largely because London North West earned £19m of supplementary income in 2016-17 from additional services provided to operators, which were not expected in our PR13 determination. This relates predominantly to the opening of the link between Oxford, Bicester and London.
- 1.6 Variable charge income in 2016-17 was £76m (6.4%) lower than our PR13 assumption. This was largely because traction electricity charges were £78m (21.6%) lower due to lower electricity prices than we assumed¹⁸. The cumulative variance on traction electricity charges was £94m (9.9%), which was also due to lower electricity prices. This was the main reason for the £70m (2.0%) cumulative variance in variable charge income.

¹⁷ This is because the inflation rates used to index access charges and grants, lag one year behind the rates used to uplift the PR13 determination assumptions from 2012-13 prices into 2016-17 prices. This is described in more detail on page 79 of Network Rail's regulatory financial statements, which are available [on Network Rail's website](#)

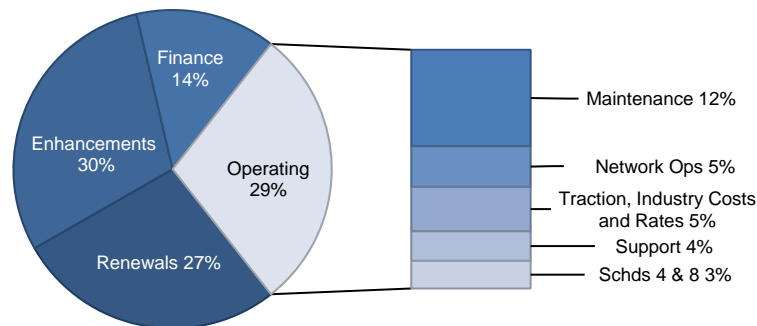
¹⁸ In our PR13 determination, we assumed electricity prices would increase but they have fallen.

- 1.7 These variances in traction electricity income are offset by the lower cost of purchasing traction electricity (see paragraph 1.16 in the traction electricity, industry costs and rates section) as the majority of these costs are passed on to the operating companies through charges.
- 1.8 Network Rail also receives OSTI, which mainly consists of property income but also freight operator, open access operator and stations income as well as facilities and financing charges¹⁹. Other single till income was £872m in 2016-17, (compared to £847m in 2015-16) which, when compared to our PR13 determination, is £60m less than expected (£116m less for the control period to date). The main reasons for the 2016-17 variance are a decline in freight income (£37m) and ‘facilities and financing charges’ income (£66m²⁰) partly offset by higher income from stations (£17m), depots (£14m) and property (£7m). Freight income has declined largely due to lower freight traffic driven by lower demand for coal in the wider economy²¹.

Expenditure

- 1.9 Figure 1.2 below shows that capital expenditure (enhancements and renewals) accounts for 57% of Network Rail’s total cumulative expenditure. Operating expenditure accounts for 29% of total cumulative expenditure. These proportions have remained broadly similar from year to year in CP5, with some variability between renewals and finance costs.

Figure 1.2: Cumulative expenditure for the three years to the end of 2016-17 in Great Britain



Source: ORR analysis of Network Rail’s regulatory financial statements

- 1.10 Figure 1.3 below shows that total expenditure in 2016-17 was £11,195m, which was £49m (0.4%) less than the £11,244m we assumed in our PR13 determination. Overspends in maintenance; schedule 8; network operations; and renewals; were more than offset by

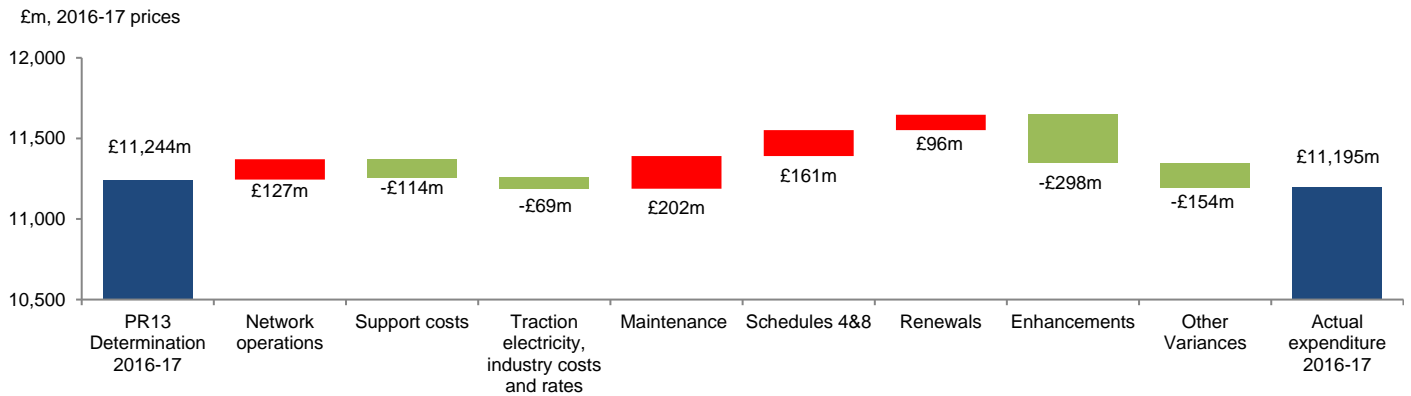
¹⁹ Network Rail receives financing and facility charge income when it finances the construction of rail assets for third parties, and recovers this charge from the third party over the life of the asset.

²⁰ The main reason for lower “facilities and financing charges” is that there was a change to the funding arrangements for the work undertaken by Network Rail. Initially Network Rail was going to borrow from the financial markets, with the subsequent cost of repaying this debt (and financing costs) to be paid by Crossrail. Instead, Crossrail directly funded the work.

²¹ For more information see the ORR’s [Rail Freight Usage 2016-17 Q4 Statistical Release](#)

underspends in support costs; traction electricity, industry costs and rates; enhancements and financing costs. These are discussed in more detail below.

Figure 1.3: Summary of 2016-17 expenditure variances compared with PR13 in Great Britain

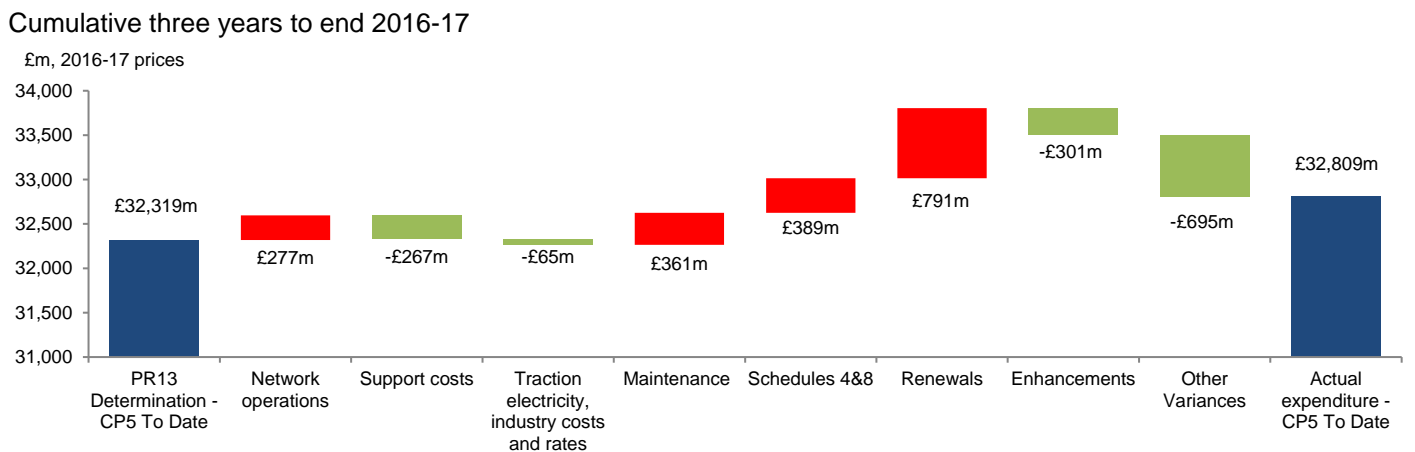


Note: A negative sign in the graph above denotes reduced expenditure compared to our PR13 determination

Source: ORR analysis of Network Rail's regulatory financial statements

1.11 For the three years of CP5 to date, total expenditure was £490m (1.5%) more than the £32,319m assumed in our PR13 determination with the main variances shown in Fig 1.4 below. The main reasons for this increase are similar to the reasons provided in paragraph 1.10 above and shown in the following tables.

Figure 1.4: Summary of cumulative expenditure variances compared with PR13 in Great Britain



Source: ORR analysis of Network Rail's regulatory financial statements

Network operations expenditure²²

1.12 The table below quantifies how Network Rail's operations expenditure has varied compared to our PR13 assumptions for 2016-17, and for the control period to date.

²² For a more detailed breakdown of network operations expenditure, see statement 7a in Network Rail's regulatory financial statements.

Table 1.2: Network operations expenditure in Great Britain

£m, 2016-17 prices		2015-16	2016-17	3 years to end March 2017
Network operations variances				
	Actual	550	554	1,608
	PR13	446	427	1,331
	Variance	(104)	(127)	(277)
Explained by:				
Efficiency savings not made in CP4, so CP5 costs are higher			(32)	(96)
Efficiencies from NOS not realised			(25)	(40)
Performance improvement schemes			(12)	(21)
Additional stations operating costs ²³			(12)	(36)
Pay awards in excess of inflation for network operations workers earlier in the control period			(6)	(18)
Industry capacity planning initiatives			(7)	(14)
Other - including efficiency assumptions not being achieved and transitional costs from the introduction of NOS			(33)	(52)

Source: Network Rail

1.13 Network Operations expenditure in 2016-17 was £4m higher than in 2015-16.

Support costs²⁴

1.14 The table below quantifies how Network Rail's support costs have varied compared to our PR13 assumptions for 2016-17, and for the control period to date.

Table 1.3: Support costs in Great Britain

£m, 2016-17 prices		2015-16	2016-17	3 years to end March 2017
Support cost variances				
	Actual	403	337	1,170
	PR13	481	451	1,437
	Variance	78	114	267
Explained by:				
Non-recurring insurance savings after actuarial reassessment of liabilities. Also, cover reduced (partly offset by increased schedules 4 & 8 costs)			57	50
Recharge of more costs to capital expenditure than expected in PR13			26	74
Compensation from Crossrail for agreeing contractual changes			9	22
One-off favourable settlement on commercial claims			0	27
Re-organisation costs less than half those assumed in our PR13 determination as fewer structural changes made			16	41
Reduction in senior management incentives			0	33
Lower than expected financial penalty imposed by ORR			0	24
Additional costs incurred to comply with pre-existing safety requirements			(5)	(25)
Other support costs			11	21

Source: Network Rail

²³ This includes the costs of stations (Bristol Temple Meads and Reading) transferred from operators and extra running costs on re-developed stations such as London Bridge, Euston and Birmingham New Street. This is offset by increased 'managed station' income in OSTI.

²⁴ For a more detailed breakdown of support costs, see statement 7a in Network Rail's regulatory financial statements.

1.15 Support costs in 2016-17 were £66m lower than in 2015-16 largely because of:

- (a) reduced insurance charges. A £58m charge in 2015-16 became a £9m credit (i.e. income) in 2016-17 (net reduction of £67m). In part, this was due to the decision to have lower insurance premiums but reduced cover (and hence higher risk). There were also reduced insurance provisions following an actuarial review;
- (b) £22m of non-recurring savings from a commercial claim in prior years not recurring in 2016-17;
- (c) telecoms costs were £3m lower due to a reduced volume of licences and to a renegotiation of existing data contracts and licences; and
- (d) higher group costs. This was a £58m credit in 2015-16. In 2016-17, the credit reduced by £34m, so support costs were £34m higher. This movement was largely because 2015-16 included a credit relating to senior management performance-related-pay, which had been accrued in 2014-15 and reversed in 2015-16, as these payments did not materialise. There was no event like this in 2016-17.

Traction electricity costs, industry costs and rates

1.16 Table 1.1 shows the combined cost of traction electricity, industry costs and rates. The combined cost is lower than we assumed in our PR13 determination by £69m (10.6%) for 2016-17 and £65m (3.6%) for the three years to the end of 2016-17. This reflects the lower level of traction electricity charges during the past two years. Considering these costs separately:

- (a) For the three years to the end of 2016-17, Network Rail spent £107m (10.5%) less than we assumed in our PR13 determination on traction electricity, due to lower electricity charges. Most of this variance was in 2016-17, where costs of £90m were 23.2% lower than we assumed in our PR13 determination. They were also £16m (5.1%) lower than in 2015-16²⁵.
- (b) For the three years to the end of 2016-17, Network Rail spent £42m (5.3%) more on industry costs and business rates than we assumed in our PR13 determination. The variance is mainly due to British Transport Police costs, where over the three years to the end of 2016-17, Network Rail's expenditure on British Transport Police was £39m (17.6%) higher than our PR13 determination. Partly this is because Network Rail's share of policing costs, which are allocated across the industry, has increased relative to our assumption. In addition, during 2016-17, Network Rail took the decision to ask for more police protection for the travelling public than provided for in the core contract.

²⁵ These variances in traction electricity expenditure are offset by the variances in traction electricity income (see paragraph 1.6 in the income section) as the majority of these costs are passed on to the operating companies through charges.

Maintenance costs²⁶

1.17 The table below quantifies how Network Rail's maintenance costs have varied compared to our PR13 assumptions for 2016-17, and for the control period to date.

Table 1.4: Maintenance costs in Great Britain

£m, 2016-17 prices	2015-16	2016-17	3 years to end March 2017
Maintenance cost variances			
Actual	1,275	1,319	3,819
PR13	1,161	1,117	3,458
Variance	(114)	(202)	(361)
Explained by:			
Increased unplanned maintenance on civils assets and some unplanned costs had been included in renewals in our PR13 determination		(45)	(16)
Higher civils inspection costs due to contractor disputes and access difficulties		(26)	(24)
'Tidy railway' and vegetation clearance projects		0	(45)
Pay awards in excess of inflation for maintenance workers earlier in the control period and changes in government legislation affecting pension costs		(15)	(37)
Efficiency savings not made in CP4, which means that CP5 costs are higher than we assumed, and lower savings in CP5. As it is difficult to accurately forecast these effects, the figures are broad estimates		(50)	(130)
Other including: a) renewals have been delayed (particularly in signalling). Additional maintenance costs have been required to maintain asset safety and performance capability; b) devolution to routes has meant that local route management teams have undertaken more initiatives to improve local performance and minimise passenger delays; and c) additional activity undertaken by the routes to understand and manage the assets in their area, slower than planned telecoms efficiency savings and additional expenditure on specialist contractors and consultants.		(66)	(109)

Source: Network Rail

1.18 In 2016-17, Network Rail spent £44m (3.5%) more than in 2015-16 on maintenance, although our PR13 determination assumed it would reduce spend by a similar amount. Partly this is due to higher maintenance on civils and buildings, higher costs of civil inspections as explained above and additional maintenance work required as renewals were delayed. There is also an increase in maintenance costs as a result of the increase in pension costs as a result of changes in government legislation.

Schedule 4 and 8 payments

1.19 Schedule 4 and schedule 8 are compensation regimes for train operators for planned line possessions (schedule 4) and unplanned service delays and cancellations (schedule 8).

²⁶ For a full listing of Maintenance cost variances, see statement 8 in Network Rail's regulatory financial statements.

1.20 The table below summarises Network Rail's expenditure on Schedule 4 compensation payments and to be informative the offsetting income received from the passenger charter access charge supplement²⁷.

Table 1.5: Schedule 4 compensation payments and access charge income in Great Britain

£m, 2016-17 prices	2016-17			3 years to end 2016-17			2015-16
	Actual	PR13	Variance	Actual	PR13	Variance	Actual
Schedule 4 compensation payments	(217)	(239)	22	(685)	(691)	6	(263)
Access charge supplement income	224	224	0	654	650	4	222
Total net cost schedule 4	7	(15)	22	(31)	(41)	10	(41)

Source: Network Rail's regulatory financial statements

1.21 For the three years to the end of 2016-17, Network Rail's net schedule 4 costs were £6m (0.9%) lower than in our PR13 determination. This was largely because of the reduced renewal activity and benign weather generally in 2016-17 (particularly during the winter), partly offset by the higher average cost of possessions than assumed in our PR13 determination.

1.22 Schedule 4 costs were £46m (17.5%) lower than in 2015-16, partly due to the benign weather (which required fewer remedial possessions) and partly due to reduced possessions resulting from the lower delivery of plain line track and full and partial conventional re-signalling.

1.23 The access charge supplement income is contractually set. Therefore, the variances in the table are because we index network grants and access charges for inflation in a different way to how we uplift the income and expenditure assumptions in Network Rail's regulatory financial statements from 2012-13 prices to 2016-17 prices as explained in footnote 16.

1.24 For the three years to the end of 2016-17, Network Rail spent £408m on schedule 8 payments to train operators compared to the £13m assumed in our PR13 determination (see Table 1.1). This is because the determination assumed that train performance would improve significantly and it has worsened²⁸. There have also been a number of one-off events such as flash-floods in London (June 2016) and storm Doris (February 2017). Network Rail has said that the level of these one-off incidents during 2016-17 is the main reason for the £79m (73.1%) increase in costs compared to 2015-16.

1.25 The underperformance in 2016-17 compared to our PR13 determination on schedule 8 was £183m as shown in Table 1.1 and on schedule 4 was £54m (£22m - £76m²⁹). The total underperformance on schedules 4 and 8 was £237m (£183m + £54m).

²⁷ Access charge supplement income is included within franchised track access income and represents the PR13-determined efficient schedule 4 possession costs Network Rail could expect to incur over the control period.

²⁸ Our PR13 determination had a benchmarked level of delays.

²⁹ For the purposes of assessing financial performance, we adjust schedule 4 costs for the effect of deferred renewals (£76m).

Renewals

- 1.26 Renewals expenditure relates to activities to replace in whole, or in part, network assets that have deteriorated so that they can no longer be economically maintained. Renewal of an asset does not result in any change or enhancement to the performance of the original asset.
- 1.27 For the three years to the end of 2016-17, Network Rail spent £791m (9.7%) more on renewing the network compared to our PR13 determination (see Table 1.6). In addition, lower volumes have been delivered than expected (this work has been valued at £1,901m³⁰) and will be delivered at a later date. Therefore, the cost of the work that Network Rail has delivered was £2,680m³¹ higher than we assumed in our PR13 determination. This gross underperformance is largely because:
- (a) Network Rail was poorly prepared to deliver renewals at the start of CP5;
 - (b) Network Rail's PR13 efficiency improvement plans were not well founded;
 - (c) Network Rail reacted slowly to the problems on efficiency;
 - (d) there has been increased pressure on access to the railway to carry out work;
 - (e) the reclassification of Network Rail into the public sector, with the introduction of fixed borrowing limits. Network Rail's inefficiency at the start of CP5 led to cost pressures. Network Rail then repeatedly re-planned its renewals projects, reducing the volume of work to keep spending within the borrowing limits. This re-planning created further cost pressures, leading to a downward spiral of deferred work and higher costs for the work done; and
 - (f) devolution to Network Rail's routes led initially to unaffordable increases in the scope of work in some areas (which, nonetheless, did deliver benefits, such as improvements in train performance).

³⁰ Network Rail shows this deferral incorrectly as £1,889m in its regulatory financial statements.

³¹ In calculating the £2,680m of financial underperformance we have excluded from the £791m overspend, £12m of expenditure on reparations (schemes to improve performance and weather resilience) in lieu of a fine in relation to adverse performance at the end of CP4.

Table 1.6: Renewals underperformance for the control period to date in Great Britain

£m, 2016-17 prices	Actual	PR13	PR13 variance	Deferral/ (acceleration) and other adjustments	Gross financial out/ (under) performance
	(A)	(B)	C = (B - A)	(D)	E = (C - D)
Track	2,896	2,256	(640)	450	(1,090)
Signaling	1,878	2,331	453	1,072	(619)
Civils	1,764	1,435	(329)	253	(582)
Information technology	386	264	(122)	(122)	0
Other renewals	2,040	1,887	(153)	236	(389)
Total renewals expenditure	8,964	8,173	(791)	1,889³²	(2,680)

Source: ORR analysis of Network Rail's regulatory financial statements

1.28 Renewals expenditure in 2016-17 was £96m (3.6%) higher than our PR13 determination and work to the value of £876m³³ was deferred. Gross underperformance in 2016-17 for work done in the year was £960m³⁴ (£240m net)³⁵. Compared to 2015-16, renewals expenditure was £371m (11.8%) lower, which is mostly due to the increasing deferral of work. Deferrals in 2015-16 were £592m and in 2014-15 were £434m (in 2016-17 prices).

1.29 The gross underperformance of £2,680m for the three years to the end of 2016-17, was largely due to the reasons set out below. The net underperformance on renewals for the three years to the end of 2016-17 was £670m (i.e. £2,680m x 25%).

1.30 The main drivers of this underperformance for the three years to the end of 2016-17 were:

- (a) a track overspend of £640m. There was an increase in plain line unit costs at the end of CP4, which meant that the starting unit rates in CP5 were around 25% above the rates assumed in our PR13 determination. Also contributing to the gross underperformance of £1,090m were: the continuing high output plant failures resulting in low productivity of possessions; difficulties in acquiring possessions; and the prioritisation of enhancements which led to the cancellation of possessions which had been planned for renewals. Our PR13 determination had assumed longer and more productive possessions and therefore lower unit costs. There were also deferrals of work to the value of £450m;
- (b) a signalling underspend of £453m. Work on several projects such as ERTMS and level crossing programmes was deferred to later years and there was £619m of gross underperformance on the work done to date. This is because of higher expenditure on the volumes delivered in 2016-17, which was due mainly to possessions being of a

³² This consists of a deferral of £1,901m and an adjustment to exclude from the £791m PR13 variance, £12m of expenditure on reparations (schemes to improve performance and weather resilience) in lieu of a fine in relation to adverse performance at the end of CP4.

³³ Network Rail shows this deferral incorrectly as £852m in its regulatory financial statements.

³⁴ In calculating the £960m of financial underperformance we have excluded from the £96m overspend, £12m of expenditure on reparations (schemes to improve performance and weather resilience) in lieu of a fine in relation to adverse performance at the end of CP4.

³⁵ This is in line with the 25% RAB sharing mechanism whereby Network Rail generally retains 25% of any renewals and enhancement out/underperformance as explained in chapter 4 of our [CP5 Regulatory Accounting Guidelines](#)

shorter duration; efficiency targets not met on contractor cost savings and reduced scope; and cost increases in large re-signalling projects in Cardiff and East Kent. Work to the value of £1,072m has been deferred;

- (c) a civils overspend of £329m as the efficiencies assumed in our PR13 determination have not been delivered and there have been several severe weather incidents that led to landslips and other damage across the network, including £40m in 2016-17 for the repair of the Dover sea wall. The gross underperformance was £582m. Deferrals were £253m partly due to the diversion of resources to deal with the severe weather incidents, of which £148m was deferred in 2016-17;
- (d) an overspend on information technology of £122m, due to Network Rail's expenditure on "spend to save" schemes. These schemes are not included in the financial performance calculation to improve the incentives on Network Rail to generate efficiency savings; and
- (e) a net overspend of £153m on other renewals (this includes work on the Supervisory Control and Data Acquisition programme (SCADA) rolled over from CP4). Deferrals of £236m and underperformance of £389m. The underperformance includes underperformance on buildings, electrical power and fixed plant and telecoms. This is largely due to Network Rail not making expected efficiency savings, scope changes and some increases in contractor costs. Also, our PR13 determination assumed that £447m less would need to be spent on as yet unspecified renewals during the three years to the end of 2016-17 compared to Network Rail's PR13 SBP, and this reduction of £447m was included in other renewals instead of being allocated across the asset categories. Only £16m of this amount refers to 2016-17 and in later years, this variance will reverse.

1.31 When considering Network Rail's financial performance it is important to know what has happened to the condition and performance of its assets, which we summarise below. Our Monitors contain further details.

1.32 There is some variation across the asset portfolio between the actual asset residual life at the end of 2016-17, and Network Rail's original forecast in its 2014 delivery plan (DP14). The percentage used life for rail, sleepers and ballast is now 51.5%, 63.0% and 49.5% respectively, which have all increased compared to the DP14 forecast of 49.4%, 61.4% and 48.0% respectively, reflecting reduced volumes of track renewals due to affordability. For switches and crossings, used life has fallen to 49.8%, which is slightly better than the 50.3% forecast in DP14. For signalling assets, average remaining life has increased to 15.5 years, which is 21 months more than the DP14 forecast, following a re-assessment of asset condition. Structures and earthworks condition scores have changed little during CP5 and are as forecast in DP14.

Enhancements

1.33 During 2015-16, the Secretary of State commissioned Sir Peter Hendy to conduct a review of Network Rail's England and Wales CP5 enhancements portfolio, addressing affordability and deliverability. Sir Peter made his report ('the Hendy report') to the Secretary of State in November 2015. As part of this review, Network Rail produced a re-profiled expenditure

forecast for the portfolio to understand whether it was affordable within the funding available. In 2015-16, this was agreed as a not to be exceeded overall funding envelope.

1.34 We adopted this funding baseline as the adjusted PR13 baseline for England and Wales CP5 enhancement projects. Network Rail is now being measured against this baseline in England and Wales (except those projects governed by bespoke protocol schemes).

1.35 In Scotland, the Enhancements Cost Adjustment Mechanism (ECAM³⁶) remains in place to adjust the PR13 assumptions when projects reach a sufficiently mature stage of development.

1.36 For the three years to the end of 2016-17, Network Rail spent £9,294m³⁷ on PR13 funded enhancements to the network, which was £731m less than the adjusted PR13 baseline (£10,025m).

1.37 As shown in Table 1.7 below, this underspend is after work to the value of £1,410m has been deferred to later years and includes £712m deferred during 2016-17 (these deferrals are net of work delayed to later years and work brought forward). This means that, although Network Rail has spent less than the adjusted baseline, it has also delivered less than expected, leading to a net underperformance of £679m for CP5 to date (£360m in 2016-17).

Table 1.7: Calculation of PR13 enhancements underperformance in Great Britain

£m, 2016-17 prices	2016-17	3 years to end of 2016-17
Hendy & ECAM adjusted baseline for PR13	3,724	10,025
Actual expenditure on PR13 schemes	<u>3,372</u>	<u>9,294</u>
Underspend before adjusting for net deferrals	352	731
Adjust for net deferrals to a later date	<u>(712)</u>	<u>(1,410)</u>
Total gross underperformance	(360)	(679)
Net Financial underperformance ³⁸	(76)	(148)

Source: ORR analysis of Network Rail's regulatory financial statements

1.38 The £679m of underperformance in the above table includes the following key elements:

- (a) **£279m on the Thameslink programme³⁹**. There has been a total overspend of £133m for the three years to the end of 2016-17 and £146m of deferrals, due to commissioning delays and additional gauging outside of London and works associated with London

³⁶ [See Network Rail's CP5 Enhancements delivery plan](#)

³⁷ We have not included £1,262m of expenditure paid for directly by third parties as these projects are not added to the RAB or included in our assessment of financial performance. Of this amount, £451m was incurred during 2016-17.

³⁸ This is generally 25% of the under/outperformance but does not apply to projects for which there are bespoke tailored protocols with the result that the 25% is diluted when all projects are taken together. See chapter 4 of our CP5 Regulatory Accounting Guidelines.

³⁹ Both the Crossrail and Thameslink programmes have separate protocols and are regulated outside our periodic review process and were not affected by the Hendy review. Under the terms of the bespoke arrangements, Network Rail retains a certain percentage of the overspend up to a certain value, at which stage the percentage changes. Therefore, the FPM impact for both the Thameslink and Crossrail overspend is not the usual 25% for enhancement overspends. Schemes with bespoke arrangements are funded by direct agreement between DfT and Network Rail and have a separate regulatory treatment. These are sometimes referred to as "tailored protocols" or "fixed price agreements".

Bridge. The underperformance of £279m on the work done in the three years to the end of 2016-17 is largely due to costs arising from the need to replan work in the London Bridge area mid-way through the programme, as well as cost increases in the wider construction market and increased traffic management expenditure;

- (b) **£121m on Crossrail.** There was a total overspend of £193m in the three years to the end of 2016-17, partly due to £72m of accelerated costs on West Outer Electrification, to coincide with the schedule of the Great Western Electrification programme. The underperformance of £121m is due to extra station works, signalling contractor works and inefficient costs arising from the acceleration and then delay of the work to electrify the railway between Maidenhead and Stockley;
- (c) **£99m on the Edinburgh to Glasgow Improvements Programme (EGIP).** There was an underspend of £13m for the three years to the end of 2016-17 but £112m of spend has been deferred. So, total underperformance on the work done was £99m and largely reflects the additional work required to achieve compliance with electrification standards; higher programme costs now expected following a re-assessment of contractor costs; higher than expected tenders from suppliers; and poor productivity;
- (d) **£79m on the Northern Hub programme.** Although there was a £168m underspend in the three years to the end of 2016-17, underperformance was £79m on the work carried out and work to the value of £247m was deferred. Underperformance is due mainly to a worse than expected asset condition that needed extra remedial costs and the use of a new procurement model, which was more costly than expected; and
- (e) **£45m on the Rolling Programme of Electrification (RPE).** For the three years to the end of 2016-17, there was an overspend of £29m on the rolling programme of electrification even though work to the value of £16m has been deferred to a later date. The underperformance of £45m on the work done is due to the reassessment of the overall costs of the RPE to reflect the additional work to achieve electrification compliance and the inadequacy of the initial cost estimate.

1.39 There was a total underspend of £395m on ring-fenced funds for the three years to the end of 2016-17. This was because Network Rail has decided to use the funds later in the control period. No out/underperformance is recognised on these funds. The largest underspends to the end of 2016-17 were:

- (a) £96m from the Depots & Stabling Fund;
- (b) £51m from the ERTMS Cab Fitment Fund;
- (c) £49m from the Strategic Rail Freight Network Fund; and
- (d) £47m from the Passenger Journey Improvement Fund.

1.40 As well as the expenditure on PR13 enhancements, for the three years to the end of 2016-17 Network Rail has spent £430m on non-PR13 enhancement projects funded through the

Investment Framework or as discretionary investment⁴⁰. As these schemes were not included in PR13 there is no PR13 baseline to compare to, so in Table 1.1 it is shown as an overspend. This offsets the £731m underspend on PR13 enhancements. In total enhancements underspend is therefore £301m for the three years to the end of 2016-17.

1.41 Non-PR13 enhancement projects are approved for RAB addition based on the criteria set out in the Investment Framework guidelines. Within the £430m expenditure, £142m was third party funding for East West Rail and £96m has been spent on the North West electrification government sponsored scheme.

Financial performance and efficiency

1.42 Our assessment of financial performance⁴¹ compares Network Rail's income and expenditure to our PR13 determination. If Network Rail can demonstrate that it has spent less whilst delivering its outputs then it has financially outperformed. Network Rail needs to show that it has not spent less by non-delivery of outputs, deferring work or working in an unsafe or unsustainable way. If it spends more, it is underperforming unless it has brought forward work.

1.43 Under a joint independent reporter mandate issued by us and Network Rail, Arup was engaged to determine the reliability and accuracy of the information presented in certain sections of Network Rail's regulatory financial statements⁴². Arup found that Network Rail's reporting of the financial performance measure (FPM) to be reasonable and accurate and that there was clear guidance available in a handbook. There was also an effective review process led by central finance to finalise numbers at year-end, with those responsible for route asset delivery challenged to demonstrate that the explanations that were provided sufficiently explained the route's financial performance.

1.44 Arup found that the FPM reporting process has improved this year as it has become better embedded within the business. However, Arup noted a continued lack of transparency between what is reported and the underlying sources of data, and the continued variability between routes in the documentation and presentation of the underlying data. For example, some routes have not quantified the financial cost of major reasons for underperformance. We expect best practice to be adopted by all routes because it is important for Network Rail to understand the drivers of financial performance so that it can focus attention on the right

⁴⁰ Discretionary investments relate to work funded from Network Rail's financial outperformance in the early part of CP4.

⁴¹ The financial performance and efficiency measures are described in more detail at: <http://orr.gov.uk/publications/guidance/regulatory-accounts>. The financial performance measure encompasses most of Network Rail's activities whilst the efficiency measure focuses on the core activities that Network Rail undertakes to operate, maintain and renew the rail network.

⁴² Arup, Review of Network Rail regulatory financial statements 2016-17, 17 July 2017. The review covers statements: 5a - Total financial performance, 5b – Total financial performance renewals variance analysis, 5c – Total financial performance enhancement variance analysis, 5d - REBS reconciliation and 14 - Renewals volumes, unit costs and expenditure.

areas. In particular, it needs to better understand the difference between scope-driven⁴³ performance and cost-driven⁴⁴ performance.

- 1.45 For renewals FPM, although Arup's sample testing found that one route was able to provide a detailed project-level build-up of cost variances feeding into calculations, other routes only provided more high-level calculations without the same degree of project-level detail.
- 1.46 We agree with Arup's recommendation that explanations of non-FPM (or FPM-neutral) amounts should be included within the financial performance and sustainability reports and in the commentaries on the regulatory financial statements. By quantifying where possible the neutral elements (i.e. the deferral from year to another), it also becomes clear how much is simply the balance between over or underspend and the FPM.
- 1.47 Renewals volumes, unit costs and expenditure has been presented in a new statement 14 report in 2016-17. Instead of unit costs being derived from all costs divided by in-year volumes, unit costs reported this year includes, for all asset types with volumes delivered in the year, all anticipated final costs⁴⁵ (AFCs) divided by the anticipated final volumes. Arup's confidence grading for the renewals unit costs calculated for Statement 14 is A2, indicating both a good process and data accuracy within 5%.
- 1.48 In 2015-16, maintenance volumes, unit costs and expenditure were given a confidence grading of C3, reflecting significant process shortcomings and data accuracy within 10%. This was a worsening of performance since 2014-15 and it was decided that, until a new process was introduced little benefit would be gained from using the old report (which consequently was not prepared for 2016-17). At the beginning of CP5, Network Rail initiated work on Activity Based Planning, a bottom-up maintenance planning process. During the year, the project rolled out the associated planning tool, which is now being used by the routes and their maintenance delivery units to build up their plans for the remainder of CP5 and for CP6. This is a welcome step forward, but progress on reporting has been slower than expected. Network Rail is currently planning to implement reporting aligned with the Activity Based Planning structure in time for the 2018-19 financial year, so that monitoring during 2018-19 will be against the 2017-18 period 11 re-forecast volumes submitted by route and maintenance delivery units, in the same way as for renewals.

Financial performance

1.49 Gross financial performance before adjusting for the under-delivery of outputs is calculated by:

- (a) totalling Network Rail's income and expenditure variances against PR13;

⁴³ Scope-driven performance is where more or less work is needed than originally anticipated.

⁴⁴ Cost-driven performance is where the same work is needed but it has been done at a different cost than was originally anticipated.

⁴⁵ This is the total lifetime cost of the project.

- (b) removing those variances on categories that do not count for financial performance; and
- (c) removing amounts attributable to changes in timing (e.g. deferrals).

- 1.50 Net financial performance is calculated by removing approximately 75% of renewals and enhancements variances in accordance with our RAB roll forward policy and making an adjustment to reflect under-delivery of outputs.
- 1.51 For the three years ending 2016-17, gross financial underperformance **after** adjusting for the under-delivery of outputs was £4,707m when compared with our PR13 assumptions and £1,979m for 2016-17 (see Table 1.8 below). Gross financial performance **before** adjusting for the under-delivery of outputs was £4,229m (£4,707m - £478m) for the three years ending 2016-17 and £1,733m (£1,979m - £246m) for 2016-17.
- 1.52 For the three years ending 2016-17, net underperformance **after** adjusting for the under-delivery of outputs was £2,166m when compared with our PR13 assumptions and £975m for 2016-17 (see Table 1.8 below).
- 1.53 The 2016-17 net underperformance was mostly due to net underperformance on renewals of £240m, schedule 8 £183m, maintenance £157m and network operations of £122m, partly offset by outperformance of £90m in support and other costs. There was also an adjustment for the non-delivery of outputs of £246m.
- 1.54 Some of the overspends and underspends discussed earlier in the document are treated as neutral for financial performance purposes (see Table 1.8 below). The main reasons for some of the renewals and enhancements variances being treated as neutral are that we adjust for timing differences in the delivery of work. The other reasons for amounts being treated as neutral for the three years to the end of 2016-17 are:
- (a) £21m of income variances on government grant income, fixed track access income and Crossrail funding arrangements were not controllable by Network Rail, so are not included in financial performance;
 - (b) £119m of schedule 4 costs for deferred renewals⁴⁶;
 - (c) £5m of network operations expenditure for the 2016-17 investment to improve the performance of Southern trains ('Southern resilience fund'). As this work takes place at the request of the DfT and is outside our PR13 determination, it has been decided that this spend is outside the scope of FPM;
 - (d) £52m of support costs. In 2015-16, Network Rail received income from agreeing to a restructuring of some financing arrangements. However, as this change in financing results in higher interest expenses (which are excluded from the scope of FPM) the

⁴⁶ Where renewals activity that results in possessions has been deferred (or accelerated), a corresponding adjustment has been made to the schedule 4 baseline.

benefit has also been excluded. Similarly, the release of part of a provision for a financial penalty is excluded from the FPM calculation; and

- (e) £17m of maintenance costs to compensate for deferred renewals. Both the underspend on renewals costs and the overspend on maintenance costs are treated as neutral.

1.55 The reasons for the financial underperformance are shown in Table 1.8 below.

Table 1.8: Financial performance in Great Britain

	£m, 2016-17 prices	Cumulative			2016-17	Notes
		Variance to PR13	Deferral/ (acceleration) and other adjustments	Cumulative financial performance		
a	Income	100	21	79	4	
b	Schedule 4 costs	6	119	-113	-54	
c	Schedule 8 costs	-395	0	-395	-183	
d	Network operations	-277	-5	-272	-122	
e	Support and other ⁴⁷ costs	238	52	186	90	
f	Network maintenance	-361	-17	-344	-157	
g	Renewals - gross	-791	1,889 ⁴⁸	-2,680	-960	
h	Capex 25% RAB sharing adjustment			2,010	720	
i	Renewals - net			-670	-240	g + h
j	PR13 Enhancements - gross	731	1,410	-679	-360	
k	Capex 25% RAB sharing adjustment			531	284	
l	PR13 Enhancements - net			-148	-76	j + k
m	Non PR13 Enhancements	-430	-419	-11	9	
n	Net financial out / (under) performance before adjusting for under-delivery of outputs and reduced sustainability			-1,688	-729	(a to f) + i + l
o	Less: adjustments for under-delivery of outputs and reduced sustainability (missed punctuality, CaSL and ORBIS targets).			-478	-246	
p	Net financial out / (under) performance			-2,166	-975	n + o
q	Add back: Capex 25% RAB sharing adjustments			-2,541	-1,004	
r	Gross financial out / (under) performance			-4,707	-1,979	p + q

Source: Network Rail's regulatory financial statements

Efficiency

1.56 For the three years of the control period to date, Network Rail's operations, support, maintenance and renewals ("OSMR") efficiency⁴⁹ has declined by -4.4% compared to our

⁴⁷ Other costs include the elements of traction electricity, industry costs and rates that are controllable by Network Rail.

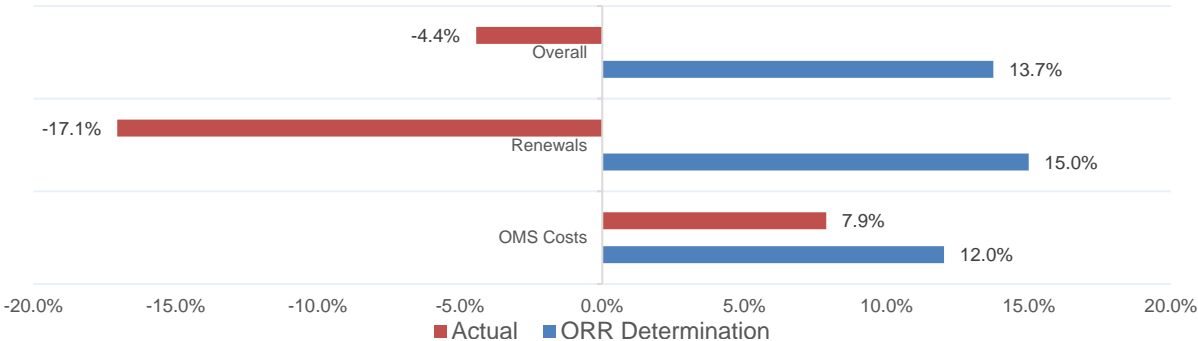
⁴⁸ This consists of a deferral of £1,901m and an adjustment to exclude from the £791m PR13 variance, £12m of expenditure on reparations (schemes to improve performance and weather resilience) in lieu of a fine in relation to poor performance at the end of CP4.

⁴⁹ This measure compares actual operations, support, maintenance and renewals expenditure in 2016-17 with expenditure in 2013-14 (the last year of CP4) adjusted for the level of activity undertaken and other factors. After these adjustments, expenditure in 2013-14 was £4,727m (in 2016-17 prices). Actual expenditure in 2016-17 was £4,937m. This includes (as shown in Table 1.1) operations (£554m), support (£337m), maintenance (£1,319m) and renewals (£2,774m) and a deduction of £47m for out of scope items such as CP4 rollover costs. Expenditure has therefore risen by £210m (£4,937m - £4,727m). Expressed as an efficiency percentage this is -4.4% (-£210m / £4,727m).

PR13 determination assumption of 13.7% efficiency savings. This follows a decline in efficiency of -3.6% over the first two years of the control period, 2014-15 and 2015-16⁵⁰.

- 1.57 By the end of CP5, it is currently forecasting efficiency of -3.9% (i.e. it will exit CP5 -3.9% less efficient than it started CP5) compared to our PR13 assumption of 19.4%.
- 1.58 Network Rail’s efficiency for the 2016-17 financial year is 0.6 percentage points better (it was -5.0% in the Monitor) than we reported in our Monitor, while the end of CP5 forecast is 2.4 percentage points worse than reported in our Monitor. These changes are because Network Rail now has a more detailed understanding of its latest business plan. One consequence of this is that in the remainder of CP5 a larger proportion of its underspend is treated as a deferral rather than an efficiency.
- 1.59 This lower efficiency for the control period to date is largely driven by the rising cost of renewals, which for the control period to date has negative efficiency of -17.1% (see the Appendix for more detail on the calculation of the renewals efficiency figure) compared to our PR13 determination assumption of a 15.0% efficiency improvement.
- 1.60 Excluding renewals, the operations, support and maintenance costs ("OSM") efficiencies achieved for the control period to date are 7.9% compared to our PR13 determination assumption of 12.0%.

Figure 1.5: Network Rail’s efficiencies for the control period to date compared to our PR13 determination in Great Britain



Source: ORR PR13 determination, Network Rail’s plans and submissions

- 1.61 Together with Network Rail, we have tried to quantify the efficiency variances but this is difficult as, for example, we need to consider different baselines, so the estimates we provide below are indicative.
- 1.62 In monetary terms, and taking into account expected changes in volumes since the determination, Network Rail’s forecast implies around £1.1bn of cash spent inefficiently for the whole of CP5 compared to approximately £2.8bn of savings assumed in our PR13

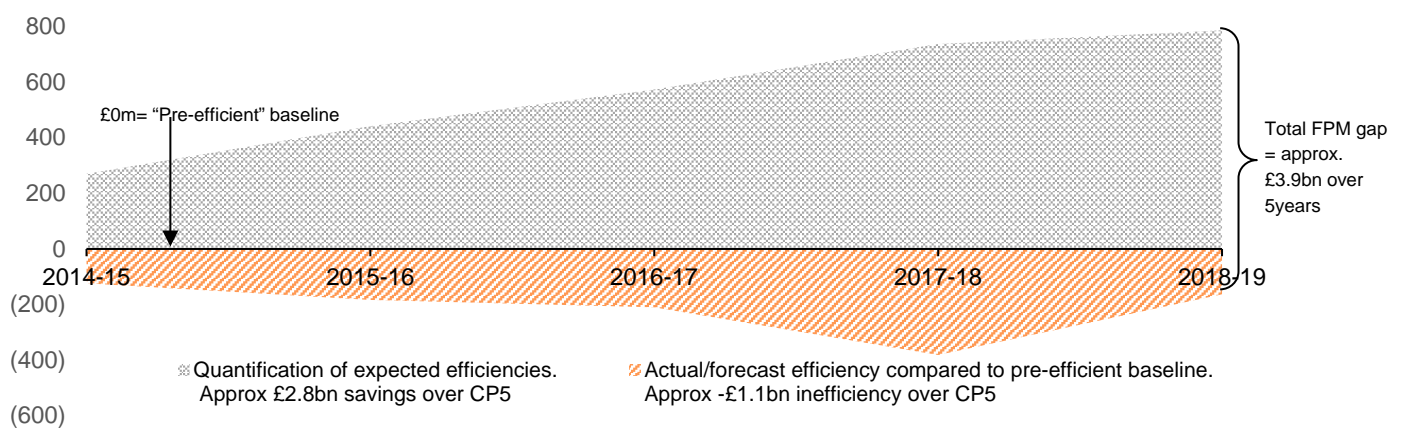
⁵⁰ The efficiency numbers include the effects of two changes to the calculation. Firstly, it now excludes some civils costs that were previously included as Network Rail were not sure of the regulatory treatment as they were civil adjustment mechanism related costs. Network Rail has also corrected the calculation of the renewals unit rates for the end of CP4, which is the baseline. As an indication of the materiality of these changes, last year we reported that OSMR efficiency for the first two years of CP5 was -8.0% whereas Network Rail now thinks it was -3.6%.

determination, as shown in Figure 1.6 below⁵¹. We estimate the total shortfall between our PR13 assumptions and Network Rail's latest forecast is around £3.9bn.

1.63 In FPM, we show the difference between what has happened (i.e. actual expenditure) and what we assumed would happen (i.e. the baseline after our efficiency assumption), so if the FPM was zero that would mean Network Rail has delivered its efficiency assumption⁵². But in these figures we show both the quantification of the efficiency trajectory that Network Rail is forecasting to deliver (i.e. the difference between its forecast and the pre-efficient baseline) and the quantification of the efficiency trajectory that we expected in our PR13 determination (i.e. the difference between what we expected would happen and the pre-efficient baseline)⁵³.

Figure 1.6: Total quantified efficiency comparison for CP5 in Great Britain

Actual/forecast vs PR13 determination assumptions (£m, 2016-17 prices)



1.64 In the following figures, we show the monetary impact of Network Rail's forecast efficiency for operations, support and maintenance and separately for renewals and the estimated value of the efficiency shortfalls that Network Rail is now forecasting.

1.65 Across the whole of CP5 in operations, maintenance and support costs, efficiency savings of £0.6bn are currently expected to be made. This compares with £1.3bn in our PR13 determination (Figure 1.7). Network Rail is forecasting therefore to underperform the determination by £0.7bn.

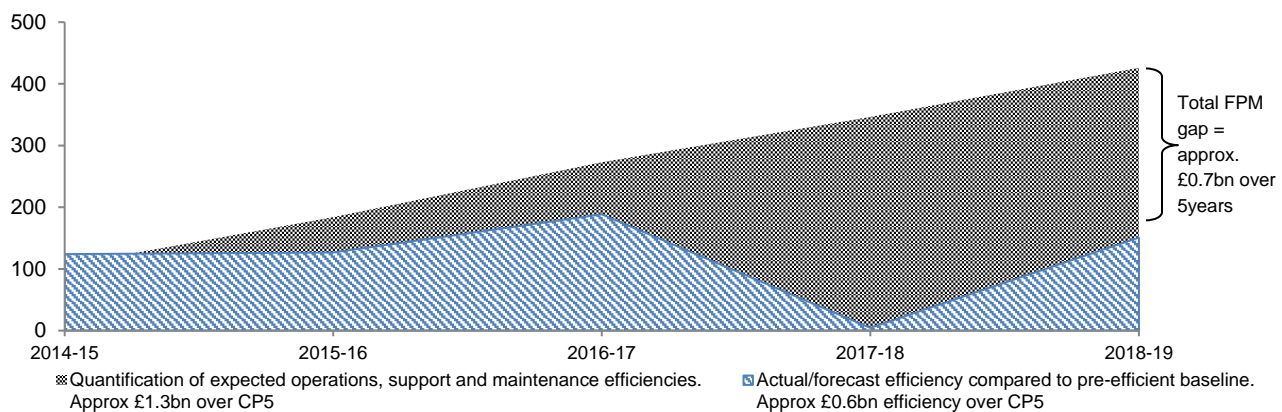
⁵¹ In our PR13 determination, we forecast different efficiency targets across the different categories of renewals. Where the actual mix of work carried out by Network Rail is different from the mix in our PR13 determination, the value of our PR13 baseline can change from year to year. For example in 2016-17, more work was done on track (expected saving to the end of the third year of CP5 of 14.7%). But, less work was done on signalling (expected saving to the end of the third year of CP5 of 18%). Lower volumes of renewals work also reduces the value of potential efficiencies. The combined effect of these two reasons mean that the expected savings for CP5 are lower this year than the £3.1bn reported in our last assessment.

⁵² The calculations exclude CP4 rollover items, as these items do not have a pre-efficient assumption to compare against.

⁵³ An example of the difference between FPM and efficiency would be, if we thought in our PR13 determination that Network Rail would reduce support costs by £6 from £100 to £94. But, it actually reduced support costs by £4 to £96. Then the expected efficiency would then be £6 (6%) and the actual efficiency would be £4 (4%). For FPM purposes the underperformance would be £6 - £4 = £2.

Figure 1.7: Quantified efficiency comparison for operations, support, maintenance (OSM) for CP5 in Great Britain

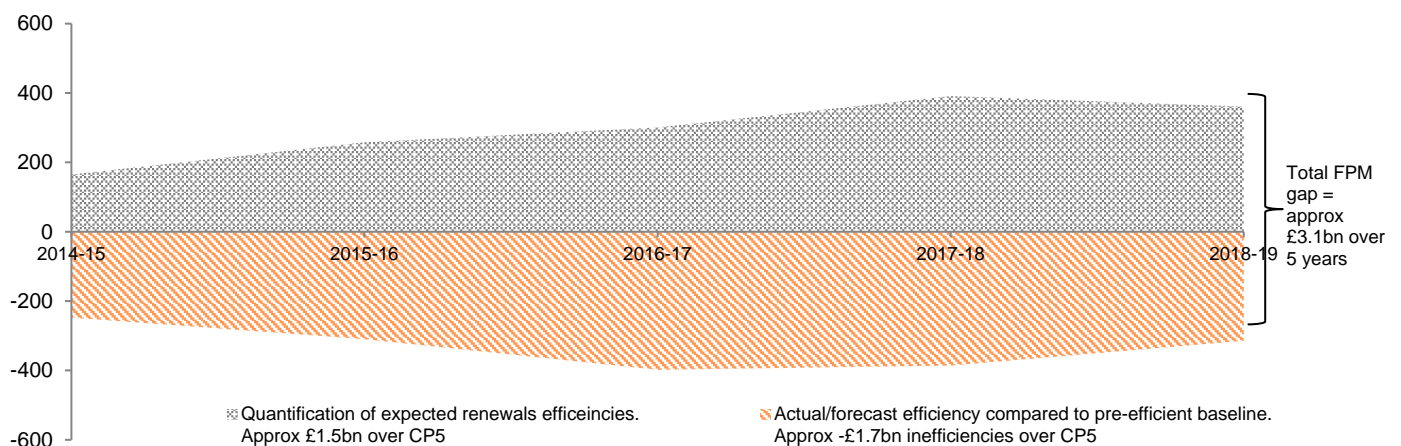
Actual/forecast vs PR13 determination assumptions (£m, 2016-17 prices)



1.66 The largest shortfall is in renewals where Network Rail is experiencing negative efficiency for the control period to date and is forecasting negative efficiency of £1.7bn by the end of CP5, compared to positive efficiency of £1.5bn in our PR13 determination. This means Network Rail is forecasting to underperform in CP5 on renewals by £3.1bn (Figure 1.8).

Figure 1.8: Quantified efficiency comparison for renewals for CP5 in Great Britain

Actual/forecast vs PR13 determination assumptions (£m, 2016-17 prices)



Borrowing

1.67 Reclassification as a public sector body from September 2014 changed the way Network Rail raises debt to fund its business activities. It no longer raises new debt from capital markets and instead borrows from DfT under a loan agreement that will run until the end of CP5. The effect of this change was not included in PR13 as it came into force after PR13 was concluded. The loan agreement with the DfT specified a fixed, nominal borrowing limit of £30,300m that Network Rail must not exceed, of which £3,300m related to Scotland. DfT subsequently provided some cash funding to Network Rail, which reduced the limit to £30,175m. As a result of the Hendy report, the limit for England & Wales was increased by £700m to £30,875m. The borrowing limit in Scotland remained unchanged.

1.68 Compared to its forecast at the start of CP5, Network Rail has spent more on renewals and enhancements in the first three years of the control period than it expected. This means there is pressure on its borrowing facility with DfT.

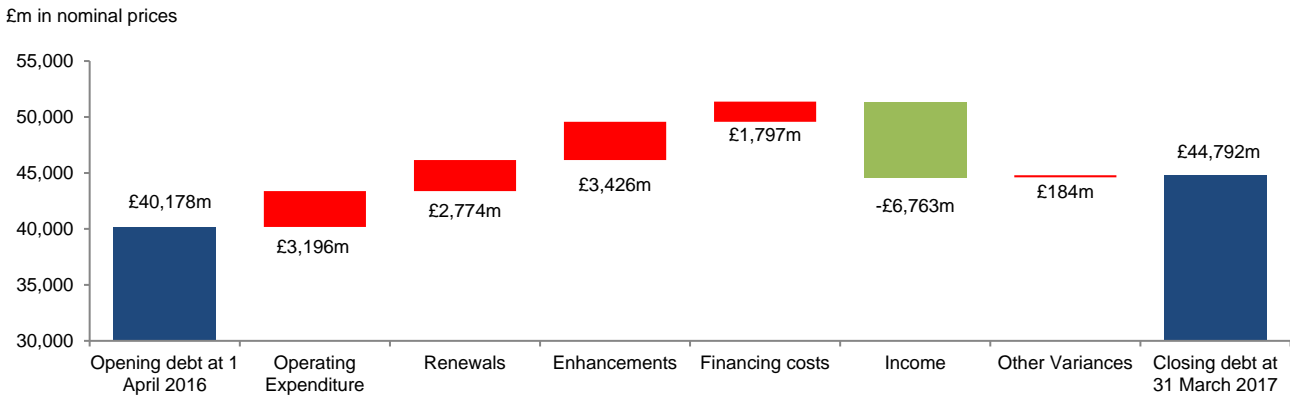
- 1.69 Network Rail's latest business plan for Great Britain includes financial headroom of £0.3bn, i.e. it thinks it will not need to use £0.3bn of the borrowing facility.
- 1.70 As noted in recent editions of our Monitor, the main financial risks to this forecast include: that given its recent performance, the company may not deliver its current planned efficiencies; movements in interest rates and inflation are uncertain; and the amount of cash it needs to set aside for funding the cost of its financial instruments⁵⁴. In addition, asset disposal proceeds are uncertain and they are likely to be lower than originally forecast.
- 1.71 In case some of these income and cost pressures materialise, Network Rail has plans to generate additional savings of £0.3bn in England & Wales, but they are not guaranteed. Network Rail has received additional grant funding of £0.3bn from DfT in 2017-18.
- 1.72 Network Rail has provided us with some high-level information on how it would deal with further pressures, but we are concerned that the company does not have a formal route-based plan in place for England & Wales to deal with them, although it does have one for Scotland. Therefore, Network Rail needs to develop its contingency plans further to address these pressures.
- 1.73 The deferral of renewals work may affect the sustainability of the network in the medium and long term and increase costs in the medium and long term.
- 1.74 Network Rail will be in a worse position financially at the start of the next control period than we expected, increasing the financial pressure on CP6.
- 1.75 As well as agreeing the maximum amount of borrowing across CP5 for Great Britain with DfT, it also agrees an amount for each year. For 2016-17, Network Rail borrowed £6.1bn from DfT, in line with its forecast.

Net debt

- 1.76 In 2016-17, net debt increased by £4,614m from £40,178m to £44,792m (nominal prices). Figure 1.9 shows the main elements of the movement in net debt.

⁵⁴ Prior to reclassification, Network Rail borrowed directly from the financial markets. To reduce its exposure to interest rate, currency and inflation fluctuations, Network Rail took out a range of financial instruments. Many of these require Network Rail to set cash aside in the form of collateral, and this amount varies as markets move.

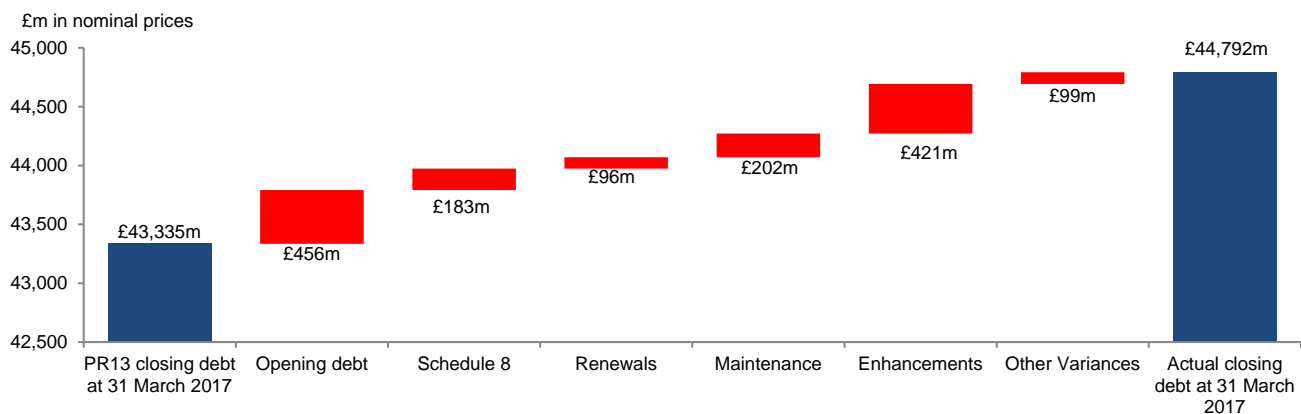
Figure 1.9: Movement in net debt in 2016-17 in Great Britain



Source: Network Rail's regulatory financial statements

1.77 As shown in Figure 1.10 below, closing net debt was £1,457m higher than we assumed in our PR13 determination, largely because the opening debt at 1 April 2016 was £456m higher, expenditure on PR13 enhancements was £421m⁵⁵ higher, expenditure on maintenance was £202m higher and expenditure on schedule 8 was £183m higher. The main reasons for the variances driving this increase are discussed elsewhere in our assessment.

Figure 1.10: Closing net debt in 2016-17, compared to our PR13 assumption in Great Britain



Source: Network Rail's regulatory financial statements

Regulatory Asset Base (RAB)

1.78 The Regulatory Asset Base is our valuation of Network Rail's assets.

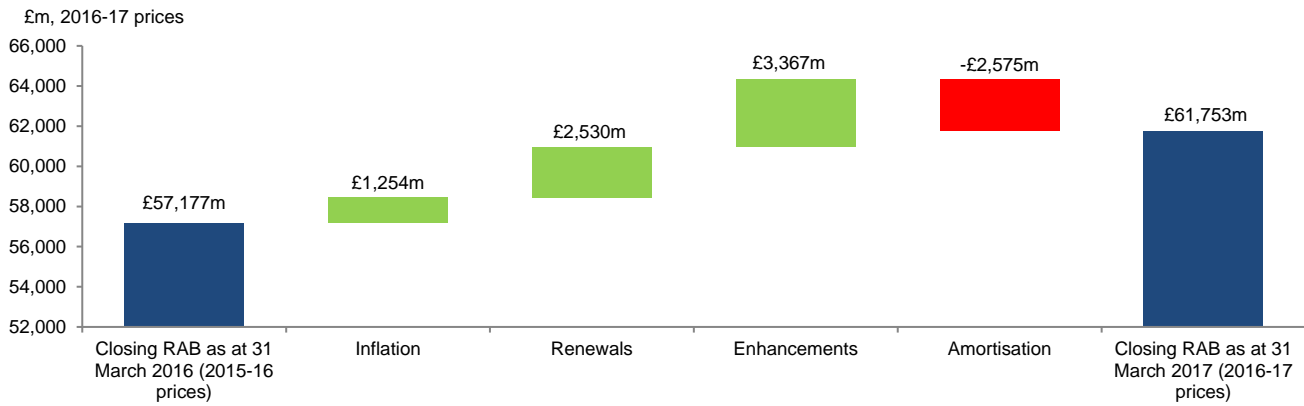
1.79 In 2016-17, Network Rail's RAB increased by £3,322m from £58,431m⁵⁶ at the end of 2015-16 to £61,753m largely due to expenditure on renewals and enhancements partly offset by amortisation (as illustrated in Figure 1.11).

1.80 This movement of £3,322m is £268m higher than we assumed in our PR13 determination due to overspends on PR13 enhancements. This has been partially offset by underspends on renewals eligible for RAB addition, largely due to the impact of deferrals.

⁵⁵ This excludes the effect of the Hendy review adjustments.

⁵⁶ This is the closing RAB balance as at 31 March 2016 of £57,177m plus the inflation adjustment of £1,254m.

Figure 1.11: RAB movement in 2016-17 in Great Britain⁵⁷

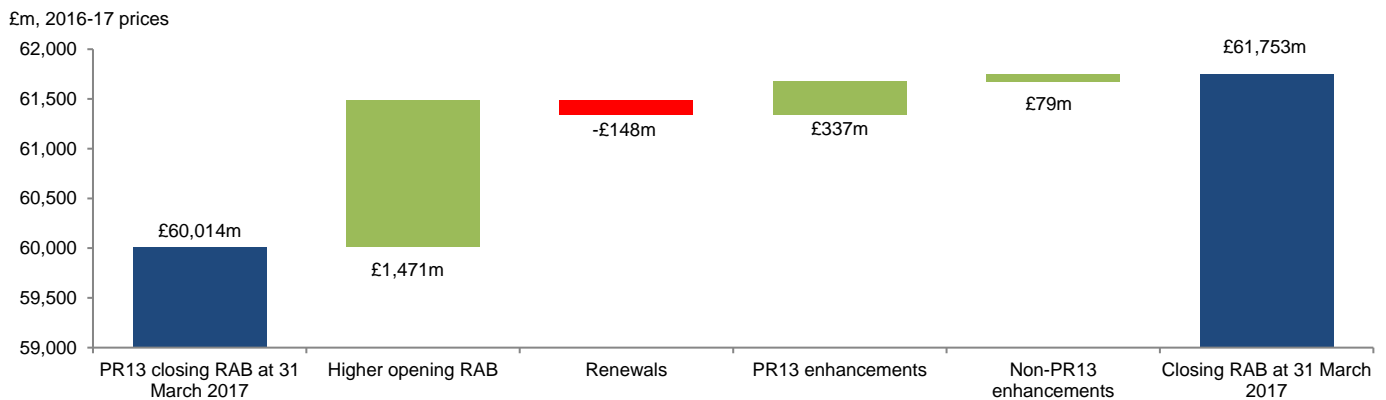


Source: Network Rail's regulatory financial statements

1.81 The difference of £1,739m between the actual closing RAB at 31 March 2017 of £61,753m and our PR13 determination assumption of £60,014m, is due to the following reasons:

- (a) there was a higher opening RAB at 1 April 2016 of £1,471m, largely due to additional capital expenditure in the last year of CP4, which we had not included in our PR13 determination;
- (b) there were £148m lower RAB additions on renewals⁵⁸ than we assumed in our PR13 determination;
- (c) there were £337m more RAB additions on PR13 enhancements than we assumed in our PR13 determination; and
- (d) there were £79m⁵⁹ of RAB additions on non-PR13 enhancements, for which there was not a PR13 assumption.

Figure 1.12: Actual RAB at the end of 2016-17 compared to PR13 in Great Britain



Source: Network Rail regulatory financial statements

⁵⁷ The addition to the RAB will not equal actual capital expenditure in Table 1.1, as it is our PR13 determination assumption that is added to the RAB and it is then adjusted in accordance with our regulatory accounting guidelines, as shown in statement 2b in Network Rail's regulatory financial statements.

⁵⁸ The figures quoted in parts (b) (c) and (d) refer to expenditure above or below our PR13 assumptions that is eligible for RAB addition. This means these amounts differ from those referred to in Table 1.1.

⁵⁹ This consists of expenditure of £54m and capitalised financing.

Additional detail on RAB additions

Renewals

1.82 In this section, we explain the £148m renewals variance in Figure 1.12. The variance is largely due to:

- (a) £1,058m⁶⁰ more was spent than assumed in PR13 on the cost of the renewals work that Network Rail has delivered in 2016-17 as explained above. As this expenditure was not manifestly inefficient⁶¹, 75% of the overspend (**£794m**) has been added to the RAB;
- (b) **£969m⁶² lower expenditure due to a deferral of work to a later date, so the RAB is lower**. This is because Network Rail has decided to profile its expenditure in a different manner than assumed in PR13 largely because of funding constraints; and
- (c) **£18m of renewals expenditure was added to the RAB** to account for additional spend to save expenditure. This was where Network Rail spent more than we assumed in our PR13 determination in order to provide benefits at a later date. This approach was set out in our PR13 determination, and for 2016-17, Network Rail was able to add 90% of the expenditure on spend to save schemes to the RAB.

Enhancements

1.83 In this section, we explain the £337m higher expenditure on PR13 enhancements and the £79m expenditure on non-PR13 enhancements shown in Figure 1.12⁶³. The variance of £337m is largely due to:

- (a) a RAB reduction of **£759m⁶⁴** for the deferral of expenditure to a later date as shown in Table 1.7;
- (b) a RAB addition of **£153m⁶⁵** on PR13 schemes subject to a tailored protocol or fixed price agreement;
- (c) a RAB addition of **£148m⁶⁶** as a result of financial underperformance on other PR13 schemes; and

⁶⁰ This overspend of £1,058m includes £960m overspend (as per Table 1.8) and £98m of capitalised financing.

⁶¹ Manifestly inefficient is defined as overspend that is not: (a) within the scope of Condition 4.1 of the network licence; (b) within the scope of the HLOS requirements (if relevant); (c) meeting a customer reasonable requirement; or (d) adding economic value to the railway, as defined in section 3.20 of the CP5 Regulatory accounting guidelines.

⁶² This consists of deferrals of £889m and £80m of capitalised financing and there is no adjustment for the RAB sharing mechanism.

⁶³ The explanations listed here include, where relevant, the cost of capitalised financing included in RAB additions, which is excluded in Tables 1.1, 1.6, 1.7 and 1.8.

⁶⁴ This deferral of £759m includes £712m overspend (as per Table 1.7) and £47m of capitalised financing.

⁶⁵ This consists of expenditure of £170m plus £11m of capitalised financing and a -£28m adjustment for the RAB sharing mechanism as a result of underperformance.

⁶⁶ This consists of expenditure of £190m plus £6m of capitalised financing and a -£48m adjustment for the RAB sharing mechanism as a result of underperformance.

- (d) a net addition of **£800m** as we increased the original PR13 baseline following the Hendy review⁶⁷.

1.84 £79m of expenditure (including capitalised financing) was added to the RAB to account for enhancements, which Network Rail has undertaken in the year that were not funded in PR13, but have been approved for RAB addition under the Investment Framework. This addition excludes the overspend on the Manchester-Victoria station redevelopment project, which has been recognised as financial underperformance.

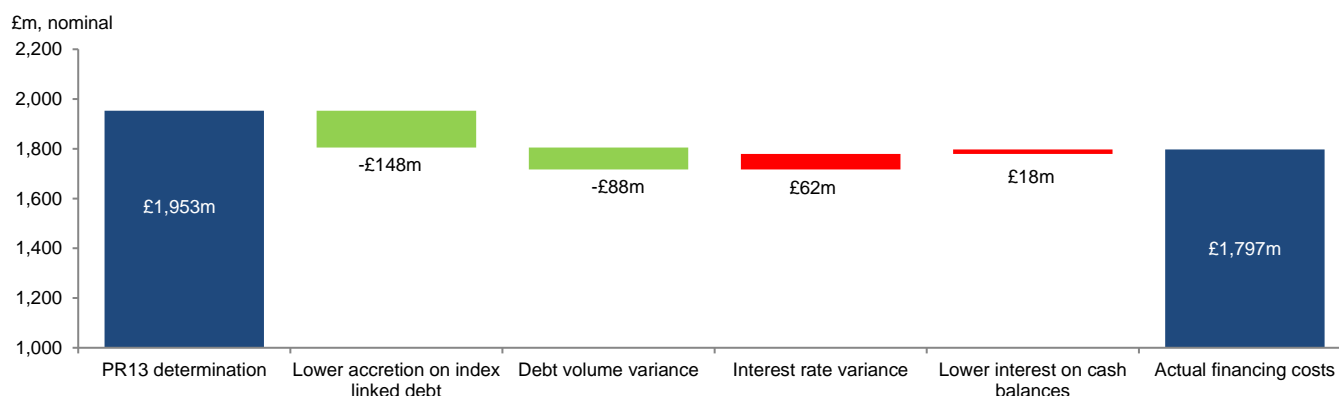
Financing costs

1.85 Network Rail incurs financing costs on its debt, which includes both cash interest costs paid to debt holders in 2016-17 and accretion⁶⁸ on index-linked debt.

1.86 In 2016-17, Network Rail’s financing costs were £1,797m, compared to £1,953m assumed in the determination, a favourable variance of £156m (8.0%). The main reasons for this variance are shown in Figure 1.13 and are:

- (a) £148m of lower accretion on index-linked debt driven by lower inflation than we assumed in PR13;
- (b) £88m of lower financing costs due to lower debt than we assumed in PR13;
- (c) £62m of higher financing costs due to higher interest rates than we assumed in PR13; and
- (d) £18m higher net financing costs due to less interest received on cash balances than assumed in PR13. This is due to both lower interest rates on deposits held, as well as a different level of working capital in the business compared to our PR13 assumption.

Figure 1.13: Actual financing costs compared to our PR13 assumptions in 2016-17



Source: Network Rail’s regulatory financial statements

⁶⁷ [The Hendy Review](#)

⁶⁸ Accretion of index-linked debt occurs when the principal amount borrowed increases in line with inflation each year and is paid in cash to debt-holders at the end of a loan period. Network Rail’s index-linked bonds are linked to RPI, so if RPI is lower than expected, accretion will be lower than expected.

Financial indicators

- 1.87 Our PR13 determination included forecasts of a number of financial indicators, including the net debt/RAB ratio⁶⁹ and the adjusted interest cover ratio (AICR) in order for us to incentivise Network Rail to maintain an appropriate financial position. We report these above in Table 1.1.
- 1.88 For 2016-17, the AICR is 0.74, which is 0.29 index points lower (i.e. worse) than our PR13 assumption of 1.03. This is largely because Network Rail has overspent on operations costs, maintenance expenditure and Schedule 8 in 2016-17 and its income is lower. However, this has been partly offset by lower support costs. In 2016-17, the AICR was 0.15 index points lower compared to 2015-16 largely due to higher financing costs.
- 1.89 The net debt/RAB ratio at 31 March 2017 is 72.5%, which is 0.3 percentage points higher (i.e. worse) than our PR13 assumption. This is largely due to higher than assumed operating expenditure partly offset by lower than assumed financing costs.
- 1.90 The net debt/RAB ratio increased by 2.2 percentage points between 31 March 2016 and 31 March 2017. The main reason for this increase is the £3,426m of enhancements in 2016-17 that are debt funded.

⁶⁹ The net debt/RAB ratio is a key measure of financial sustainability for companies regulated by economic regulators. Gearing is similarly a key ratio for other companies.

2. Scotland

Introduction

- 2.1 This chapter summarises Network Rail's actual income, expenditure, financial performance and efficiency in Scotland⁷⁰. We compare them to, our PR13 determination assumptions for 2016-17, and to 2015-16. The chapter also covers RAB, borrowing, net debt and financial indicators. We do not cover financing costs in this chapter because Network Rail's interest rates on its debt are the same throughout Great Britain.
- 2.2 We also carry out an analysis of regulatory financial performance, which covers most areas of Network Rail's expenditure, and we make adjustments for work not done (deferrals of work) and missed outputs to give an overview of how much it is costing Network Rail to deliver its outputs compared to our PR13 determination. This identifies the volumes actually delivered in 2016-17, and so far in the control period, and measures how much Network Rail has spent in delivering these volumes against the amount we had assumed in our PR13 determination.
- 2.3 We additionally look at the progress Network Rail is making against the efficiency assumptions in our PR13 determination and the forecast for the end of the control period. This analysis covers Network Rail's expenditure on operations, support, maintenance and renewals.
- 2.4 In our 2016-17 Monitor, the main comparisons of Network Rail's financial performance were against Network Rail's budget for 2016-17, not against our PR13 determination.
- 2.5 In our analysis, we frequently refer to "under/over spends" and "out/under performance". By "under/over spends" we mean a simple variance between two numbers, so, for example, if Network Rail has spent more than our PR13 assumption that would be described as an overspend. We then analyse that overspend and decide how much of it is made up of neutral issues, such as when there is a timing difference where Network Rail has moved work (and hence expenditure) from one year to another without adversely affecting the sustainability and performance of the network. Adjusting for these neutral factors, we understand how much of the under or overspend is because it has not performed at the level of efficiency that we assumed – in simple terms this is called "out or under performance".
- 2.6 In this section, we also report on some of the challenges Network Rail is facing. These issues have implications for Network Rail's plans for CP5, particularly as it is spending more money in CP5 than it originally expected and it has constraints on its borrowing with a fixed nominal borrowing limit. In view of these challenges, Network Rail has updated its plans for CP5.

⁷⁰ This section of our assessment covers Network Rail's Scotland route, which is not exactly the same geographical area as the nation of Scotland.

- 2.7 Network Rail's financial performance has impacted on Transport Scotland's decision on its SoFA. The decision was not taken by the planned date of 20 July 2017 and instead will be taken by 13 October 2017. In particular, more assurance was needed over how much efficiency improvement Network Rail would deliver in the future. Network Rail has provided further analysis and we:
- (a) consulted on how to improve Network Rail's renewals efficiency, setting out where we intend to make changes to our approach on the assessment and monitoring of efficiency⁷¹;
 - (b) commissioned an independent review to see whether Network Rail's efficient expenditure plans will deliver on time, are robust and sufficiently challenging. The findings will be published shortly on our website; and
 - (c) held an industry seminar on Network Rail's renewals efficiency to bring together an industry perspective on what needs to change.
- 2.8 We will be publishing a paper on financial monitoring and efficiency early in 2018. We also intend to publish a paper later in 2017 on changes to the financial framework in CP6.
- 2.9 In Scotland, the Enhancements Cost Adjustment Mechanism (ECAM) remains in place to adjust the PR13 assumptions when projects reach a sufficiently mature stage of development.
- 2.10 We will report on Network Rail's financial performance under the route level efficiency benefit sharing (REBS) mechanism in a letter to be published in winter 2017.

⁷¹ For more information see our [consultation and responses](#)

Income and expenditure

2.11 Table 2.1 shows income and expenditure and other information for Scotland, in 2016-17 and for the control period to date, compared to our PR13 assumptions, and for 2015-16.

Table 2.1: Summary of key financial information for Scotland

£m, 2016-17 prices	2016-17			3 years to end 2016-17			2015-16
	Actual	PR13	Variance	Actual	PR13	Variance	Actual
Income	(A)	(B)	C=(A-B)	(D)	(E)	F=(D-E)	
Fixed charge Income	93	93	0	280	279	1	92
Variable charge Income	87	89	-2	241	239	2	81
Other single till income	47	60	-13	154	175	-21	51
Government grant income	464	461	3	1,360	1,349	11	457
Total income	691	703	-12	2,035	2,042	-7	681
Operating expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Signaller expenditure	33	27	-6	95	84	-11	32
Other network operations expenditure	11	13	2	45	39	-6	18
Total network operations expenditure	44	40	-4	140	123	-17	50
Support costs	36	45	9	132	144	12	50
Traction electricity, industry costs and rates	51	53	2	147	149	2	50
Network maintenance	118	112	-6	344	344	0	117
Schedule 4 compensation payments	39	32	-7	79	80	1	29
Schedule 8 compensation payments	-	-	-	4	1	-3	1
Total operating expenditure	288	282	-6	846	841	-5	297
Capital expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Renewals	359	300	-59	952	942	-10	314
PR13 Enhancements	305	150	-155	888	1,029	141	260
Non-PR13 Enhancements	-2	0	2	15	0	-15	9
Total enhancements	303	150	-153	903	1,029	126	269
Total capital expenditure	662	450	-212	1,855	1,971	116	583
Other expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Financing costs	162	202	40	423	541	118	129
Corporation tax (received)/paid	0	0	0	0	0	0	0
Total other expenditure	162	202	40	423	541	118	129
Total expenditure	1,112	934	-178	3,124	3,353	229	1,009
Other information	(A)	(B)	A-B or B-A				
RAB	6,099	6,563	-464	n/a	n/a	n/a	5,768
Net debt	4,044	4,498	454	n/a	n/a	n/a	3,606
Adjusted interest cover ratio	1.01	1.02	-0.01	n/a	n/a	n/a	1.09
Gearing (net debt/RAB) ⁷²	66.4%	68.5%	2.1%	n/a	n/a	n/a	63.9%

Source: Network Rail's regulatory financial statements

Income

2.12 Network Rail's total income in Scotland in 2016-17 was £691m. This was £12m (2%) lower than our PR13 determination. This variance is relatively small because grant income (the

⁷² Our PR13 model assumed gearing of 66.5%. The difference of 2.0% is due to outturn inflation being different to our assumption.

most significant element of Network Rail's income) and fixed charge income are largely fixed in real terms as part of our PR13 determination.

2.13 The most significant variance is in OSTI, where actual income of £47m was £13m (21.7%) lower than our PR13 determination of £60m. This is largely because:

- (a) property income in 2016-17 is £6m (30.0%) lower than we expected in our PR13 determination as rental income and sales income are lower than expected; and
- (b) income from freight is £7m (70.0%) lower than expected in our PR13 determination largely because of the decline in the coal market.

2.14 Other single till income was lower for the control period to date by £21m (12.0%) for similar reasons as noted above and £4m (7.8%) lower than in 2015-16.

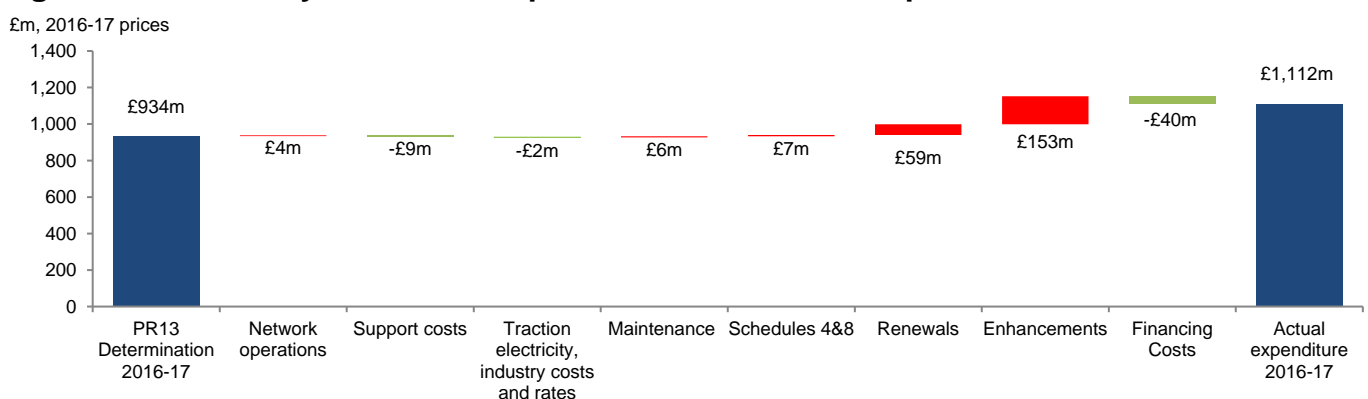
2.15 Variable charge income in 2016-17 was £2m (2.2%) lower than our PR13 assumption. This was because traction electricity charges were £6m (23%) lower due to lower electricity prices than we assumed, this was partly offset by higher capacity (£3m) and variable usage charge income (£1m) because of increased train services.

2.16 Variable charge income in 2016-17 is £6m higher than in 2015-16 largely due to £5m more schedule 4 access charge supplement income received in 2016-17.

Expenditure

2.17 Figures 2.1 and 2.2 below summarise the main variances in expenditure in 2016-17 and for the control period to date.

Figure 2.1: Summary of 2016-17 expenditure variances compared with PR13 in Scotland

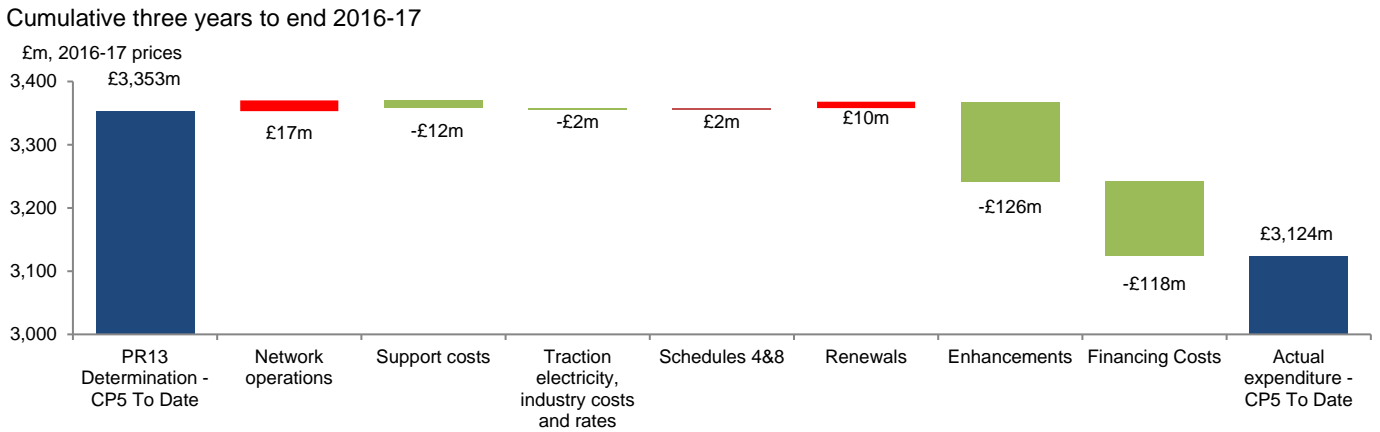


Note: A negative sign in the graph above denotes reduced expenditure compared to our PR13 determination

Source: Network Rail's regulatory financial statements

2.18 Total expenditure in Scotland in 2016-17 was £1,112m. This was £178m (19.1%) higher than we assumed in our PR13 determination, which was largely due to overspends in renewals (£59m) and enhancements (£153m) offset partly by lower financing costs (£40m).

Figure 2.2: Summary of cumulative expenditure variances compared with PR13 in Scotland



Source: Network Rail regulatory financial statements

2.19 For the three years of CP5 to date, total expenditure was £229m (6.8%) lower than the £3,353m assumption in our PR13 determination with the main variances shown in Fig 2.2 above.

Network operations expenditure⁷³

2.20 In 2016-17, Network Rail spent £4m (10.0%) more on network operations than we assumed in our PR13 determination, which compares to spending 30% more in Great Britain. For the control period to date, network operations expenditure has been £17m more than we assumed in our determination.

2.21 The in-year and cumulative overspends against our determination are largely caused by the same factors as with Great Britain as whole (e.g. the NOS programme not achieving savings and higher CP4 exit costs). However, unlike in England, Network Rail did not take over the management of any stations from train operators, so there was no effect on station costs for this reason.

Support costs⁷⁴

2.22 Expenditure on support costs in 2016-17 was £9m (20.0%) lower than our PR13 determination and £12m (8%) lower over the control period to date.

2.23 The underspend in 2016-17 is largely due to savings in insurance (as explained in the Great Britain section). The variance for the control period to date is largely due to the same reasons as for 2016-17 but the underspends are partly offset by £8m of higher accommodation costs as a result of the relocation of the Scotland route HQ.

⁷³ This consists of signalling and non-signalling costs. For a more detailed breakdown of network operations expenditure, see statement 7a in Network Rail's regulatory financial statements.

⁷⁴ For a more detailed breakdown of support costs, see statement 7a in Network Rail's regulatory financial statements.

Traction electricity, industry costs and rates

2.24 Expenditure on traction electricity, industry costs and rates in 2016-17 was £2m lower than our PR13 determination (2016-17 and cumulatively). For the control period to date, this is largely due to savings on traction electricity costs (£7m) partly offset by higher British Transport Police costs (£6m).

Maintenance expenditure

2.25 For the control period to date, maintenance expenditure was £344m, which was in line with the assumption in our PR13 determination of £344m.

2.26 In 2016-17, maintenance expenditure was £6m (5%) higher than our PR13 determination and £1m (1%) higher than in 2015-16. Most of the reasons for these variances are as set out in the Great Britain section.

Schedule 4 & 8 payments

2.27 For the three years to the end of 2016-17 total schedule 4 and 8 payments were £83m (£79m and £4m respectively), which was £2m higher than we assumed in our PR13 determination (a £1m underspend in Schedule 4 payments and a £3m overspend in Schedule 8 payments).

2.28 However, less renewals work has been delivered, which reduced Schedule 4 costs by £15m. After adjusting for this factor, cumulative underperformance on Schedules 4 and 8 was £17m. This underperformance is largely due to Network Rail finding it difficult to secure longer possessions.

2.29 In 2016-17, schedule 4 and 8 payments were £39m, which was £7m higher than our PR13 determination and £9m higher than in 2015-16 because of a deferral of work from 2015-16 to 2016-17 on the Glasgow Queen Street slab track works, an increase in re-signalling works and the effect of adverse weather events.

Renewals

2.30 In 2016-17, Network Rail spent £359m on renewals in Scotland, which is £59m (20%) more than we assumed in our PR13 determination.

2.31 For the control period to date, Network Rail has spent £952m on renewals in Scotland, which is £10m (1%) more than we assumed in our PR13 determination. However, lower volumes (£143m) have been delivered than expected and will be delivered at a later date, therefore the cost of the work that Network Rail has delivered was £153m higher than we assumed in our PR13 determination. This is shown in Table 2.2 below.

Table 2.2: Renewals gross underperformance for the control period to date in Scotland

£m, 2016-17 prices	PR13 variance	Deferral/ (acceleration) of work	Gross financial out/(under) performance
	(A)	(B)	C = (A-B)
Track	-87	3	-90
Signalling	142	168	-26
Civils	-50	-29	-21
Buildings	8	12	-4
Electrical power and fixed plant	12	17	-5
Telecoms	6	11	-5
Wheeled plant and machinery	19	19	0
Information technology	-12	-12	0
Property	-10	-7	-3
Other renewals	-38	-39	1
Total renewals expenditure	-10	143	-153

Source: Network Rail regulatory financial statements

2.32 Gross underperformance on renewals for the three years to the end of 2016-17 was £153m. The net underperformance for the three years to the end of 2016-17 was £38m (i.e. £153m x 25%). This gross underperformance is largely due to the same reasons as identified for Great Britain (see paragraph 1.27).

Enhancements

2.33 Total expenditure on PR13 enhancements in Scotland for the three years to the end of 2016-17 was £888m, which was £141m (13.7%) lower than our adjusted PR13 determination (see Table 2.3).

2.34 However, there were deferrals of £289m, which means there was gross underperformance of £148m of which £99m was recognised in 2016-17.

Table 2.3: Calculation of PR13 enhancements underperformance in Scotland

£m, 2016-17 prices	2016-17	3 years to end of 2016-17
ECAM adjusted baseline for PR13	150	1,029
Actual expenditure on PR13 schemes	<u>305</u>	<u>888</u>
(Over)/underspend before adjusting for net deferrals	(155)	141
Adjust for net deferrals to a later date	<u>56</u>	<u>(289)</u>
Total gross underperformance	(99)	(148)
Net financial underperformance ⁷⁵	(25)	(37)

Source: Network Rail regulatory financial statements

2.35 The gross underperformance of £148m for the three years to the end of 2016-17 was due largely to the following two key programmes:

- a) **£99m on the Edinburgh to Glasgow Improvements Programme (EGIP).** There was an underspend of £13m for the three years to the end of 2016-17, but £112m has been

⁷⁵ This is generally 25% of the under/outperformance as set out in chapter 4 of our CP5 Regulatory Accounting Guidelines.

deferred, so underperformance is £99m. For the two years to the end of 2015-16, underperformance was £32m. The £67m increase in underperformance to the end of 2016-17, reflects: additional work required to achieve electrification compliance, higher programme costs now expected following a re-assessment of contractor costs, higher than expected tenders from suppliers and poor productivity; and

- b) **£45m on the Rolling Programme of Electrification (RPE).** For the three years to the end of 2016-17, there was an overspend of £29m on the rolling programme of electrification even though work to the value of £16m has been deferred to a later date, so underperformance is £45m. The underperformance is due to the reassessment of the overall costs of the RPE to reflect the additional work to achieve electrification compliance and an inaccurate initial cost estimate.

2.36 There was a £83m deferral⁷⁶ on the Highland Mainline project for the three years to the end of 2016-17, due to re-profiling work to later years and delays in awarding contracts.

2.37 The other significant deferral in 2016-17 compared to our PR13 assumption was £54m on ring-fenced funds for which no out/underperformance is recognised. These include the Scottish stations fund (£17m underspend), the Scottish strategic freight investment fund (£16m) and the Scottish network improvement fund (£15m). This underspending of ring-fenced funds relates to the deferral of work to later in the control period, rather than savings through efficiency.

Financial performance and efficiency

Financial performance

2.38 Table 2.4 shows Network Rail's financial performance for the control period to date and in 2016-17, showing both gross (i.e. before RAB sharing mechanism adjustments and after regulatory output adjustments) and net financial performance. In 2016-17, Network Rail's gross financial underperformance was £180m with cumulative gross underperformance for the control period to date of £355m.

2.39 The 2016-17 gross underperformance was mostly due to gross underperformance in enhancements (£99m), renewals (£55m) and schedule 4 (£14m).

⁷⁶ This project has not completed the relevant GRIP milestone for Network Rail to formally declare it as a deferral. However, for the purposes of this report and Network Rail's regulatory financial statements, that is how we and Network Rail have treated it.

Table 2.4: Financial performance in Scotland⁷⁷

	£m, 2016-17 Prices	Cumulative			2016-17	Notes
		Variance to PR13	Deferral/ (acceleration) and adjustments	Cumulative financial performance		
a	Income	3	12	-9	-8	
b	Schedule 4 costs	1	15	-14	-14	
c	Schedule 8 costs	-3	0	-3	0	
d	Network operations	-17	0	-17	-4	
e	Support costs and other ⁷⁸ costs	7	4	3	5	
f	Network maintenance	0	5	-5	-1	
g	Renewals - gross	-10	143	-153	-55	
h	Capex 25% RAB sharing adjustment			115	42	
i	Renewals - net			-38	-13	g + h
j	PR13 Enhancements - gross	141	289	-148	-99	
k	Capex 25% RAB sharing adjustment			111	74	
l	PR13 Enhancements - net			-37	-25	j + k
m	Non PR13 Enhancements	-15	-15	0	0	
n	Net financial out / (under) performance before adjusting for under-delivery of outputs and reduced sustainability			-120	-60	(a to f) + i + l
o	Less: adjustments for under-delivery of outputs and reduced sustainability (missed punctuality, CaSL and ORBIS targets)			-9	-4	
p	Net financial out / (under) performance			-129	-64	n + o
q	Add back: Capex 25% RAB sharing adjustments			-226	-116	
r	Gross financial out / (under) performance			-355	-180	p + q

Source: Network Rail's regulatory financial statements

Efficiency

2.40 For the three years of the control period to date, Network Rail has reported operations, support, maintenance and renewals (OSMR) efficiency in Scotland of 11.2% compared to our PR13 assumption of 13.8%. This is 9.6 percentage points higher than the 1.6% reported for the first two years of the control period (2014-15 and 2015-16).

2.41 This improvement is due to both a number of technical changes to the underlying calculation⁷⁹, as well as the delivery of efficiency across the business in Scotland. Although the underlying calculation is complex, Network Rail estimates that around 3-4% of this improvement relates to changes in the underlying calculation, while around 6% relates to the

⁷⁷ The financial performance and efficiency measures are described in more detail at: <http://orr.gov.uk/publications/guidance/regulatory-accounts>. The financial performance measure encompasses most of Network Rail's activities whilst the efficiency measure focuses on the core activities that Network Rail undertakes to operate, maintain and renew the rail network.

⁷⁸ Other costs include the elements of traction electricity, industry costs and rates that are controllable by Network Rail.

⁷⁹ The efficiency numbers include the effects of two changes to the calculation. Firstly, it now excludes some civils costs that were previously included as Network Rail were not sure of the regulatory treatment as they were civil adjustment mechanism related costs. We have also corrected the calculation of the renewals unit rates for the end of CP4, which is the baseline.

delivery of efficiency. This indicates that Network Rail's efficiency in the first two years of the control period was around 5% once restated for changes in the underlying calculation.

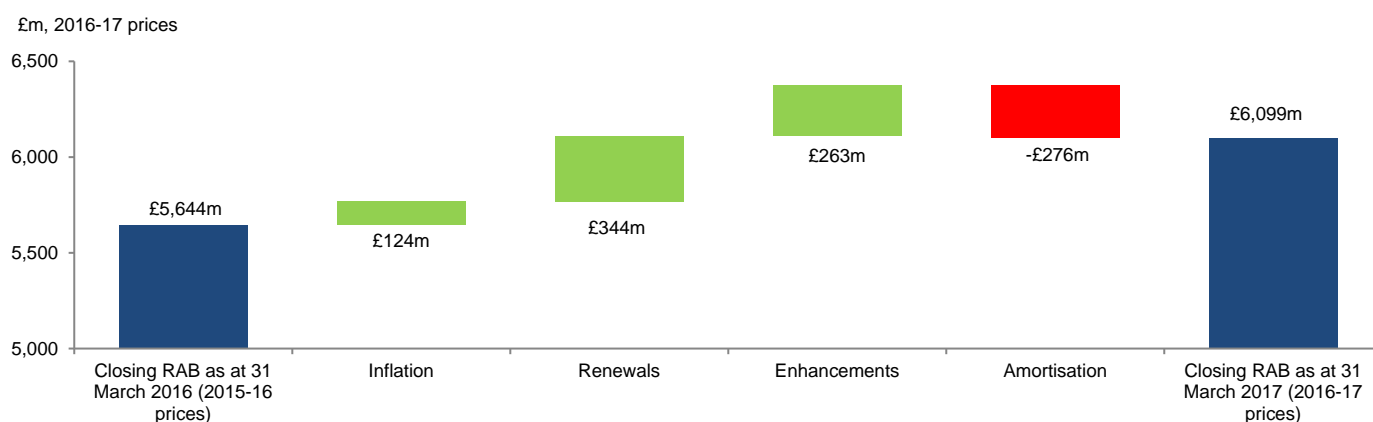
2.42 By the end of CP5, Network Rail in Scotland is currently forecasting OSMR efficiency of 10.7% (i.e. it will exit CP5 10.7% more efficient than it started CP5) compared to our PR13 assumption of 19.5%. This compares favourably to the position for Great Britain overall, but suggests that despite Network Rail still planning on delivering efficiency initiatives in Scotland, cost pressures elsewhere in the route mean that Network Rail thinks that efficiency will reduce by 0.5 percentage points in the last two years of the control period.

2.43 Network Rail's end of CP5 forecast is 2.5 percentage points better than reported in our 2016-17 Scotland Monitor. This change is because Network Rail now has a more detailed understanding of its latest business plan. One consequence of this in Scotland is that some of the underspend that was previously treated as a deferral has now been reclassified as an efficiency.

Regulatory Asset Base

2.44 As shown in Figure 2.3, the RAB for Scotland increased by £331m from £5,768m⁸⁰ to £6,099m in 2016-17. This is largely due to RAB additions of £344m for renewals and £263m for enhancements, and a reduction of £276m for the amortisation charge⁸¹.

Figure 2.3: RAB movement in 2016-17 in Scotland



Source: Network Rail's regulatory financial statements

2.45 The reasons for the difference of £464m between the actual closing RAB at 31 March 2017 of £6,099m and our PR13 determination assumption of £6,563m are shown in Figure 2.4.

2.46 The main reason for the variance is that in PR13 we assumed that at the start of 2016-17 the RAB would be £485m higher than the actual starting RAB value of £5,768m. This is mainly due to lower enhancement expenditure in 2014-15 and 2015-16 than we assumed, notably

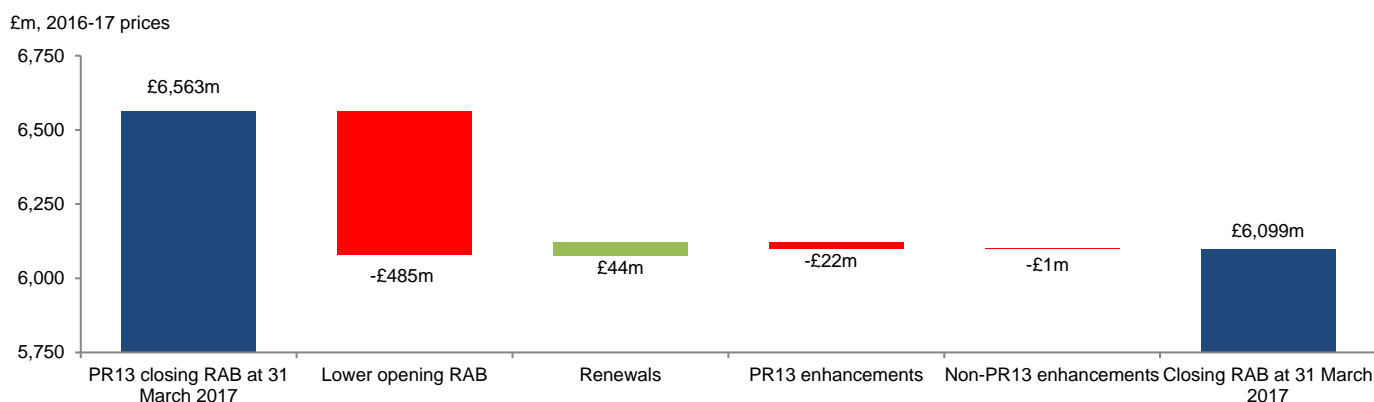
⁸⁰ This is the closing RAB balance as at 31 March 2016 of £5,644m plus the inflation adjustment of £124m.

⁸¹ The explanations listed here include, where relevant, the cost of capitalised financing included in RAB additions, which is excluded in Tables 2.1, 2.2, 2.3 and 2.4.

on the EGIP programme. We had also assumed higher capital investment towards the end of CP4.

2.47 The difference is also due to £44m higher additions to the RAB for renewals expenditure in the year and £22m lower additions to the RAB for PR13 enhancements expenditure in the year. These variances are explained below.

Figure 2.4: Actual RAB at the end of 2016-17 compared to PR13 in Scotland



Source: Network Rail's regulatory financial statements

Additional detail on RAB additions

Renewals

2.48 The most significant reason for the higher renewals RAB addition of £44m in 2016-17 was Network Rail spent £61m more than we assumed in PR13 on the renewals volumes it undertook in 2016-17 (£55m of underperformance). It deferred £3m of expenditure, there was -£2m of capitalised financing and an adjustment for the RAB sharing mechanism of -£13m on the underperformance.

Enhancements

2.49 There are a number of factors that explain why Network Rail had £22m lower RAB additions in 2016-17 than we assumed in PR13. These include the issues outlined below.

2.50 The most material factor was a **£141m** reduction to the baseline as a result of the ECAM process on the Aberdeen to Inverness and Shotts line electrification projects, which adjusted the baseline for RAB additions in line with our view of the efficient cost of the projects.

2.51 This was partly offset by Network Rail re-profiling expenditure on projects, including the Aberdeen - Inverness journey time improvement scheme. This resulted in Network Rail bringing forward **£42m** of expenditure from other years of CP5 into 2016-17.

2.52 In addition, Network Rail underperformed by £103m on enhancements in 2016-17, in particular, on the Edinburgh to Glasgow Improvement Programme and the Rolling Programme of Electrification. As this expenditure was not manifestly inefficient, 75% of it (**£77m**) was added to the RAB.

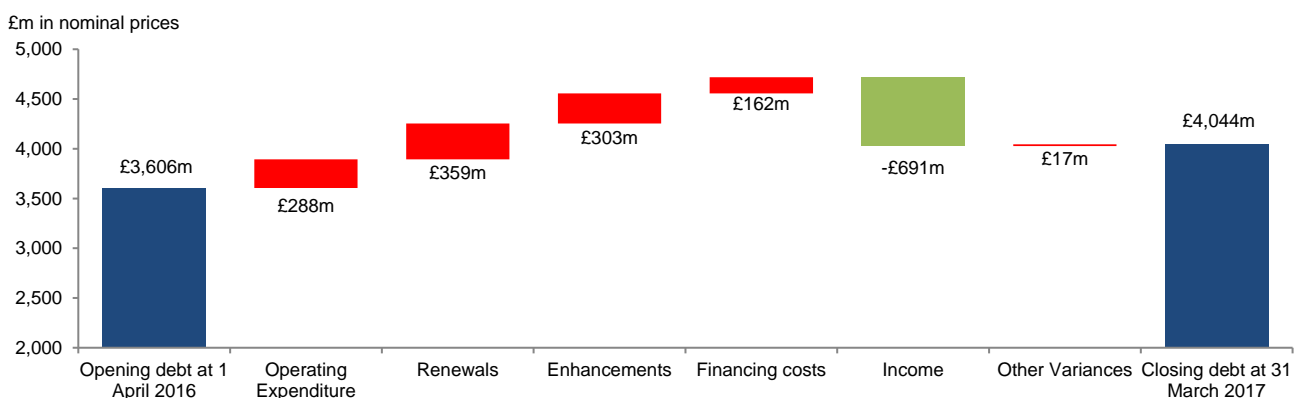
Borrowing

- 2.53 Following Network Rail’s reclassification as a public sector body in 2014 by the Office of National Statistics (ONS), it agreed to borrow from the Department for Transport (DfT) instead of issuing bonds. The amount of new borrowing available from DfT is limited to £3.3bn across CP5 for Scotland.
- 2.54 Compared to its forecast at the start of CP5, Network Rail has spent more than it expected on the capital expenditure work it delivered in the control period to date. It is also planning to spend more in the remainder of CP5. This means there is pressure on its borrowing facility with DfT.
- 2.55 Network Rail’s latest business plan for Scotland includes financial headroom of £0.1bn to the end of CP5. In other words, it thinks it will not need to use that amount of the borrowing facility. The main financial risks to this forecast include the costs of renewals and enhancements, delivery of efficiency initiatives, movements in interest rates and cash collateral balances and inflation.
- 2.56 Network Rail has done some planning on how it would deal with further cost pressures. But, given the relatively small size of the headroom, the scale of the above variances and that Network Rail in recent years has continually been too optimistic in forecasting its financial performance, we are discussing with the company how it can make its plan as robust as possible.
- 2.57 We are making changes to the way we monitor Network Rail’s efficiency for CP5 and we will report on this in the next Scotland monitor.
- 2.58 We do not cover annual borrowing in this section because there is not a separate annual notified borrowing limit for Scotland in 2016-17.

Net debt

- 2.59 Network Rail’s net debt in Scotland increased by £438m from £3,606m to £4,044m in 2016-17. The reasons for this are summarised in Figure 2.5 and are the same reasons as mentioned in the income and expenditure section.

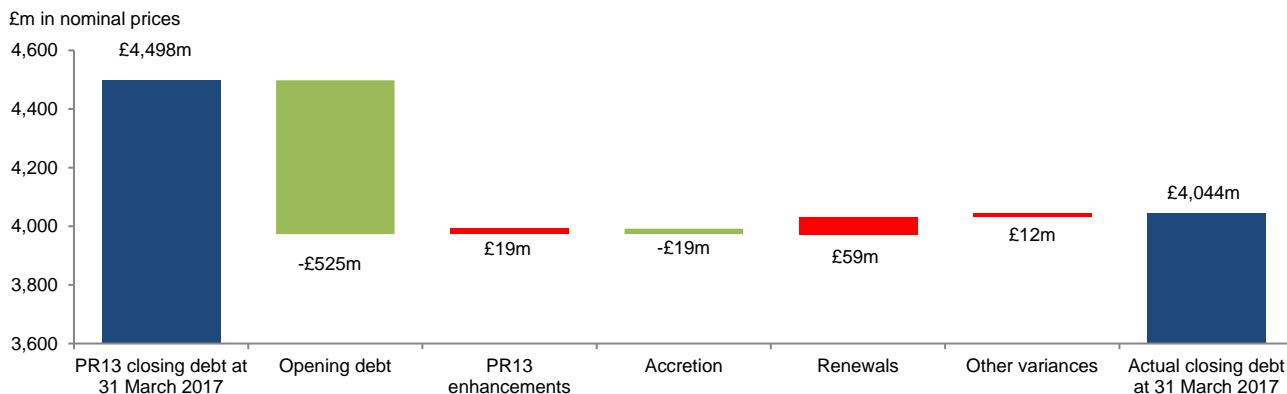
Figure 2.5: Movement in net debt in 2016-17 in Scotland



Source: Network Rail's regulatory financial statements

2.60 Compared to our PR13 determination of £4,498m, Network Rail's actual closing debt in Scotland was £4,044m, £454m lower than we assumed. The reasons for this are summarised in Figure 2.6.

Figure 2.6: Closing net debt in 2016-17 compared to PR13 in Scotland



Source: Network Rail's regulatory financial statements

2.61 These variances are mainly driven by the £525m lower than expected opening debt for the year largely due to lower than assumed enhancement expenditure earlier in the control period, and by £59m higher renewals expenditure as explained above and £19m higher enhancement expenditure.

Financial indicators

2.62 Our PR13 determination included forecasts of a number of financial indicators, including the net debt/RAB ratio⁸² and the adjusted interest cover ratio (AICR) in order for us to incentivise Network Rail to maintain an appropriate financial position. We report these above in Table 2.1.

2.63 For 2016-17, the AICR ratio is 1.01, which is 0.01 index points lower (i.e. worse) than our PR13 assumption. It is 0.08 index points lower than in 2015-16, mainly because financing costs have increased.

2.64 The net debt/RAB ratio at 31 March 2017 is 66.4%, 2.1 percentage points lower (i.e. better) than our PR13 assumption. This is mainly because Network Rail has spent less on enhancements and financing costs than assumed in our PR13 determination.

2.65 The net debt/RAB ratio increased by 2.5 percentage points between 31 March 2016 and 31 March 2017 to 66.4%. This is mainly due to the enhancements expenditure of £303m that was debt funded and an increase in financing costs.

⁸² The net debt/RAB ratio is a key measure of financial sustainability for companies regulated by economic regulators. Gearing is similarly a key ratio for other companies.

3. Wales

Introduction

- 3.1 This chapter summarises Network Rail's actual income, expenditure, financial performance and efficiency in Wales. We compare them to, our PR13 determination assumptions for 2016-17, and to 2015-16. The chapter also covers the RAB, net debt and financial indicators. We do not cover borrowing because there is no separate borrowing limit for Wales in 2016-17. Also, we do not cover financing costs in this chapter because Network Rail's interest rates on its debt are the same throughout Great Britain.
- 3.2 We also carry out an analysis of regulatory financial performance, which covers most areas of Network Rail's expenditure, and we make adjustments for work not done (deferrals of work) and missed outputs to give an overview of how much it is costing Network Rail to deliver its outputs compared to our PR13 determination. This identifies the volumes actually delivered in 2016-17, and so far in the control period, and measures how much Network Rail has spent in delivering these volumes against the amount we had assumed in our PR13 determination.
- 3.3 We additionally look at the progress Network Rail is making against the efficiency assumptions in our PR13 determination and the forecast for the end of the control period. This analysis covers Network Rail's expenditure on operations, support, maintenance and renewals.
- 3.4 In our 2016-17 Monitor, the main comparisons of Network Rail's financial performance were against Network Rail's budget for 2016-17 not against our PR13 determination.
- 3.5 In our analysis, we frequently refer to "under/over spends" and "over/under performance". By "under/over spends" we mean a simple variance between two numbers, e.g. if Network Rail has spent more than our PR13 assumption that would be described as an overspend. We then analyse that overspend and decide how much of it is made up of neutral issues (i.e. if there is a timing difference where Network Rail has moved work (and hence expenditure) from one year to another), and how much is because it has not performed at the level of efficiency that we assumed – this is called "underperformance".
- 3.6 In this document, we also report on some of the challenges Network Rail is facing. These issues have implications for Network Rail's plans for CP5 and for CP6, particularly as it is spending more money in CP5 than it originally expected and it has constraints on its borrowing with a separate fixed nominal borrowing limit for England & Wales. In view of those challenges, Network Rail has updated its plans for CP5. Meanwhile, the continuing high level of deferrals, in particular renewals, makes it harder for Network Rail to adequately increase renewals volumes in the future to compensate.
- 3.7 Network Rail's financial performance has impacted on the UK Government's decision on its SoFA. The decision was not taken by the planned date of 20 July 2017 and instead will be taken by 13 October 2017. In particular, more assurance was needed over how much

efficiency improvement Network Rail would deliver in the future. Network Rail has provided further analysis and we:

- (a) consulted on how to improve Network Rail's renewals efficiency, setting out where we intend to make changes to our approach on the assessment and monitoring of efficiency⁸³;
- (b) commissioned an independent review to see whether Network Rail's efficient expenditure plans will deliver on time, are robust and sufficiently challenging. The findings will be published shortly on our website; and
- (c) held an industry seminar on Network Rail's renewals efficiency to bring together an industry perspective on what needs to change.

3.8 We will be publishing a paper on financial monitoring and efficiency early in 2018. We also intend to publish a paper later in 2017 on changes to the financial framework in CP6.

3.9 We are using PR18 to take route regulation further in CP6. Route settlements will create an opportunity for comparisons and accountability for performance, with routes accountable for delivering specific outputs, with responsibility for their financial performance, more akin to autonomous commercial companies. But we are not waiting for CP6 to take advantage of this new structure and we will start transitioning in the year ahead.

⁸³ For more information see our [consultation and responses](#)

Income and expenditure

3.10 Table 3.1 shows income and expenditure and other information for Wales, in 2016-17 and for the control period to date, compared to our PR13 assumptions, and for 2015-16.

Table 3.1: Summary of key financial information for Wales

£m, 2016-17 prices	2016-17			3 years to end 2016-17			2015-16
	Actual	PR13	Variance	Actual	PR13	Variance	Actual
Income	(A)	(B)	C=(A-B)	(D)	(E)	F=(D-E)	
Fixed charge Income	20	20	0	63	62	1	18
Variable charge Income	31	30	1	86	83	3	24
Other single till income	18	23	-5	57	61	-4	20
Grant income	278	276	2	821	814	7	274
Total income	347	349	-2	1,027	1,020	7	336
Operating expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Signaller expenditure	23	19	-4	67	56	-11	22
Other network operations expenditure	10	8	-2	24	24	0	8
Total network operations expenditure	33	27	-6	91	80	-11	30
Support costs	20	21	1	59	66	7	18
Traction electricity, industry costs and rates	10	8	-2	37	29	-8	14
Network maintenance	68	63	-5	210	194	-16	74
Schedule 4 compensation payments	10	18	8	22	50	28	6
Schedule 8 compensation payments	1	0	-1	-2	1	3	1
Total operating expenditure	142	137	-5	417	420	3	143
Capital expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Renewals	200	180	-20	514	488	-26	176
PR13 Enhancements	177	146	-31	300	281	-19	84
Non-PR13 Enhancements	0	0	0	6	0	-6	1
Total enhancements	177	146	-31	306	281	-25	85
Total capital expenditure	377	326	-51	820	769	-51	261
Other expenditure	(A)	(B)	C=(B-A)	(D)	(E)	F=(E-D)	
Financing costs	89	102	13	238	284	46	72
Corporation tax (received)/paid	0	0	0	0	0	0	0
Total other expenditure	89	102	13	238	284	46	72
Total expenditure	608	565	-43	1,475	1,473	-2	476
Financial and other information	(A)	(B)	(A-B) or (B-A)	(D)	(E)	F=(E-D)	
RAB	3,152	3,180	-28	n/a	n/a	n/a	2,935
Net debt	2,226	2,301	75	n/a	n/a	n/a	1,954
Adjusted interest cover ratio	0.95	1.10	-0.15	n/a	n/a	n/a	1.07
Gearing (net debt/RAB) ⁸⁴	70.7%	72.3%	1.6%	n/a	n/a	n/a	68.1%

Source: Network Rail's regulatory financial statements

⁸⁴ Our PR13 financial model assumed gearing of 70.0%. The difference of 2.3% is due to outturn inflation being different to our assumption.

Income

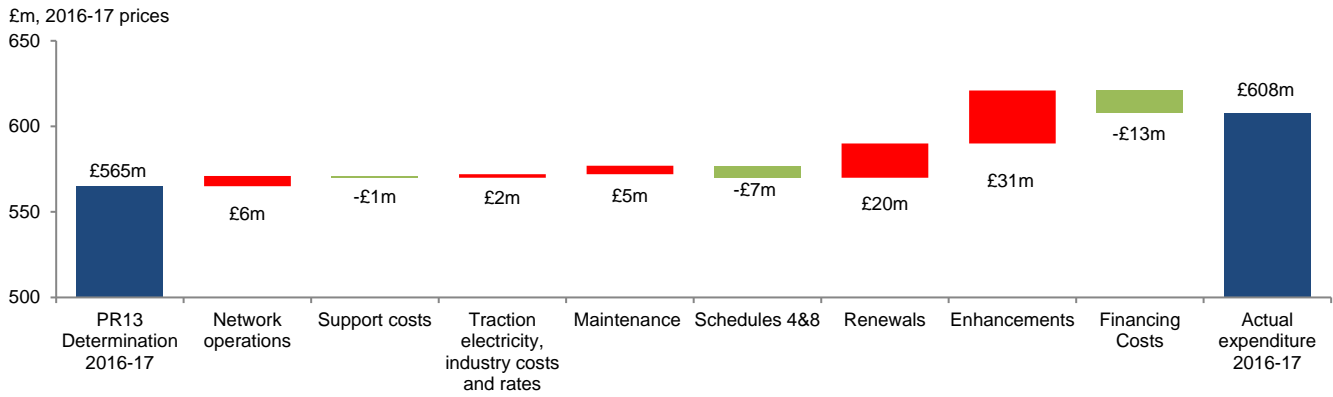
- 3.11 Network Rail's total income in Wales in 2016-17 was £347m, £2m (0.6%) lower than our PR13 determination but £7m (0.7%) higher for the control period to date.
- 3.12 It was also £11m (3.3%) higher than in 2015-16 largely because variable charge income was £7m higher as a result of higher Schedule 4 income.
- 3.13 Grant income in 2016-17 was £2m (0.7%) higher than our PR13 determination, £7m (0.9%) higher for the control period to date and £4m (1.5%) higher than in 2015-16. The reasons for the variances are similar to those for Great Britain as a whole (see earlier in this document).
- 3.14 Other single till income was £5m (21.7%) lower than our PR13 determination for 2016-17 and £4m (6.6%) lower for the control period to date. These variances are largely due to:
- (a) facilities and financing charges being £4m lower in 2016-17 than we assumed in PR13 (£6m lower for the control period to date) largely as a result of changes to the Welsh Valley lines project;
 - (b) freight income was £2m lower in 2016-17 (£1m lower for the control period to date); and
 - (c) £2m of additional property rental income in 2016-17 (£5m higher for the control period to date).
- 3.15 Other single till income was £2m (10.0%) lower than in 2015-16 because of a £2m reduction in freight income.

Expenditure

Overview

- 3.16 Network Rail's total expenditure in Wales in 2016-17 was £608m. This was £43m (7.6%) higher than we assumed in our PR13 determination. The variances are shown below in Figure 3.1.

Figure 3.1: Summary of 2016-17 expenditure variances compared with PR13 in Wales



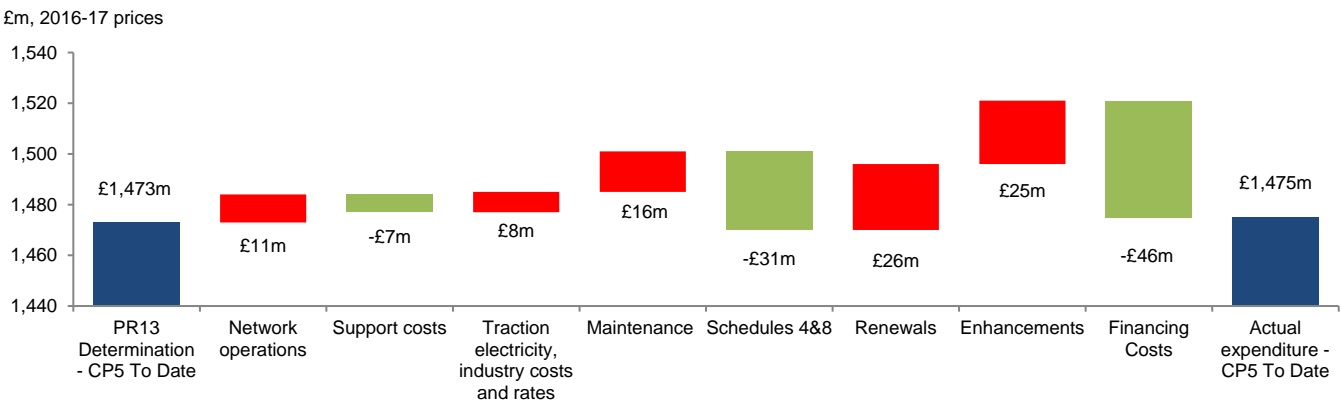
Note: A negative sign in the graph above denotes reduced expenditure compared to our PR13 determination

Source: Network Rail's regulatory financial statements

3.17 In CP5 for the control period to date Network Rail's total expenditure in Wales in 2016-17 was £1,475m, which is £2m (0.1%) more than the £1,473m we assumed in our PR13 determination. The variances are shown below in Figure 3.2.

Figure 3.2: Summary of cumulative expenditure variances compared with PR13 for Wales

Cumulative three years to end 2016-17



Source: Network Rail's regulatory financial statements

Network operations expenditure⁸⁵

3.18 Compared to the assumptions that we made in our PR13 determination, Network Rail spent £6m (22.2%) more on network operations in 2016-17 and £11m (13.8%) more than the determination for the control period to date.

3.19 The reasons for these variances are broadly for the same reasons as for Great Britain as a whole, i.e. efficiency savings not made in CP4, which means that CP5 costs are higher than we assumed, and higher transitional costs on the NOS scheme. Expenditure is £3m (10.0%) higher than in 2015-16, largely due to additional expenditure on projects aimed at improving performance and increasing passenger capacity (notably Industry Access Planning).

⁸⁵ This consists of signalling and non-signalling costs. For a more detailed breakdown of network operations expenditure, see statement 7a in Network Rail's regulatory financial statements.

Support costs⁸⁶

3.20 Expenditure on support costs was £1m (4.8%) lower than the assumption in our PR13 determination and £7m (10.6%) less than assumed for the control period to date. Both of these variances are for the same reasons as for Great Britain as a whole (see paragraph 1.15).

Traction electricity, industry costs and rates

3.21 In Wales, expenditure was £2m (25.0%) more than our PR13 determination and £8m (27.6%) more for the control period to date. Both of these variances are due to the increased cost of British Transport Police compared to our PR13 determination (see more detail in paragraph 1.16 in the Great Britain section). Total expenditure in 2016-17 is £4m lower than in 2015-16, due to a reduction in one-off British Transport Police costs compared to 2015-16.

Maintenance

3.22 Maintenance expenditure in Wales in 2016-17 was £5m (7.9%) more than our PR13 determination and £16m (8.2%) more than our PR13 determination for the control period to date. This is due to higher than assumed levels of expenditure on civils inspections, vegetation management and 'tidy railway', not achieving efficiency savings (e.g. through the ORBIS programme) and increased maintenance costs because of deferrals in renewals.

3.23 Expenditure was £6m (8.1%) lower than in 2015-16, largely because of lower maintenance on civils.

Schedule 4 & 8 payments

3.24 In 2016-17, Network Rail made £10m of schedule 4 payments, which was £8m less than we assumed in our PR13 determination. For the control period to date, Network Rail paid £28m less than we assumed in our PR13 determination. The main reason for these variances is because renewals have been deferred to later in the control period and beyond, and better planning for possessions. Schedule 4 payments were £4m higher than in 2015-16.

3.25 Schedule 8 costs in 2016-17, for unplanned delays and cancellations, were £1m compared to our PR13 determination that assumed a zero cost. For the control period to date, there was net income on Schedule 8 of £2m compared to a cost of £1m assumed in our PR13 determination.

Renewals

3.26 In 2016-17, Network Rail spent £20m (11.1%) more on renewing the network compared to our PR13 determination. However, lower volumes have been delivered than expected (this work has been valued at £53m) and will be delivered at a later date. Therefore, the cost of

⁸⁶ For a more detailed breakdown of support costs, see statement 7a in Network Rail's regulatory financial statements.

the work that Network Rail has delivered was £73m higher than we assumed in our PR13 determination (this is underperformance).

3.27 For the control period to date there was an overspend compared to our PR13 determination of £26m (5.3%). But deferrals were £202m, so the cost of the work Network Rail has delivered was £228m higher.

3.28 Network Rail’s renewals expenditure was £24m (13.6%) higher than in 2015-16, due mainly to extra delivery of track volumes notably switches and crossings. This includes a partial recovery of the backlog, which existed at the beginning of 2016-17.

Table 3.2: Calculation of gross renewals underperformance for 2016-17 in Wales

£m, 2016-17 prices		Variance
PR13 determination	180	
Actual expenditure 2016-17	<u>200</u>	
Overspend before adjusting for net deferrals		-20
Adjust for net deferrals to a later date		<u>-53</u>
Total gross underperformance		-73

Source: Network Rail’s regulatory financial statements

3.29 The gross underperformance of £73m in 2016-17, was for similar reasons as set out in the Great Britain section.

3.30 By asset category the main drivers of the 2016-17 overspend were:

- (a) in track (overspend £10m). There were deferrals of £23m, largely due to delays and design changes on the Cardiff area re-signalling project, which has now been delayed by two years. The total underperformance was **£33m** largely because there was an increase in the cost of track renewals at the end of CP4, which meant that the starting unit rates in CP5 were above the rates assumed in our PR13 determination;
- (b) in signalling (overspend £19m). The total underperformance was **£32m** largely due to delays and design changes on the Cardiff area re-signalling project and there were also deferrals of £13m; and
- (c) in civils (overspend £2m). There were deferrals of £6m and total underperformance was **£8m**. This was because the efficiency assumptions in our PR13 determination have not been met and there were additional costs of repairing structures and earthworks arising from storm damage. There was also continuing additional underbridge costs on the River Teme and River Severn viaduct work.

Enhancements

- 3.31 Total PR13 enhancements expenditure for Wales in 2016-17 was £177m⁸⁷. This was £31m (21.2%) higher than our adjusted PR13 determination. The variance for 2016-17 was largely due to the acceleration of work on the Great Western electrification project (GWEP).
- 3.32 For the control period to date, Network Rail has spent £300m on PR13 enhancements, which is £19m (6.8%) more than we assumed in PR13. This is largely made up of a £35m acceleration of work on GWEP and a £13m deferral of work on the Bridgend - Swansea electrification project due to delays on GWEP.

Financial performance and efficiency

Financial performance

- 3.33 Table 3.3 shows Network Rail's financial performance for the control period to date and in 2016-17, showing both gross (i.e. before RAB sharing mechanism adjustments and after regulatory output adjustments) and net financial performance. Network Rail's cumulative gross underperformance for the control period to date was £237m and in 2016-17 gross financial underperformance was £89m.
- 3.34 The 2016-17 gross underperformance was mostly due to gross underperformance on renewals of £73m, network operations of £6m and maintenance of £5m, partly offset by £5m lower Schedule 4 (planned disruption) costs. There was also an adjustment for the non-delivery of outputs of £6m.
- 3.35 The underperformance on renewals in Wales, is proportionately higher than for Great Britain as a whole. This reflects significant delays to the Cardiff area re-signalling project, which increased expenditure. Overall, financial underperformance is proportionately less than for Great Britain as a whole mainly because there is no underperformance on Enhancements in Wales following the Hendy review.

⁸⁷ We have not included £13m of expenditure on pay-as-you-go enhancement projects paid for directly by third parties, as these projects are not added to the RAB or included in our assessment of financial performance.

Table 3.3: Financial performance in Wales⁸⁸

	£m, 2016-17 prices	Cumulative			2016-17	Notes
		Variance to PR13	Deferral/ (acceleration) and adjustments	Cumulative financial performance		
a	Income	6	5	1	-3	
b	Schedule 4 costs	28	13	15	5	
c	Schedule 8 costs	3	0	3	-1	
d	Network operations	-11	0	-11	-6	
e	Support costs and other ⁸⁹ costs	-1	0	-1	0	
f	Network maintenance	-16	-9	-7	-5	
g	Renewals - gross	-26	202	-228	-73	
h	Capex 25% RAB sharing adjustment			171	55	
i	Renewals - net			-57	-18	g + h
j	PR13 Enhancements - gross	-19	-19	0	0	
k	Capex 25% RAB sharing adjustment			0	0	
l	PR13 Enhancements - net			0	0	j + k
m	Non PR13 Enhancements	-6	-6	0	0	
n	Net financial out / (under) performance before adjusting for under-delivery of outputs and reduced sustainability			-57	-28	(a to f) + i + l
o	Less: adjustments for under-delivery of outputs and reduced sustainability (missed punctuality, CaSL and ORBIS targets)			-9	-6	
p	Net financial out / (under) performance			-66	-34	n + o
q	Add back: Capex 25% RAB sharing adjustments			-171	-55	
r	Gross financial out / (under) performance			-237	-89	p + q

Source: Network Rail's regulatory financial statements

Efficiency

3.36 For the three years of the control period to date, Network Rail has reported operations, support, maintenance and renewals (OSMR) efficiency in Wales of -7.5% compared to our PR13 assumption of 14.7%. The efficiency of -7.5% consists of operations, support and maintenance efficiency of 8.6%, and renewals negative efficiency of -20.0% and is 21.4 percentage points better than the -28.9% reported for the first two years of the control period (2014-15 and 2015-16).

3.37 This improvement is due to both a number of technical changes to the underlying calculation⁹⁰, as well as the delivery of efficiency across the business in Wales and that the effect of the Cardiff area re-signalling scheme was mainly in the first two years of the control

⁸⁸ The financial performance and efficiency measures are described in more detail at: <http://orr.gov.uk/publications/guidance/regulatory-accounts>. The financial performance measure encompasses most of Network Rail's activities whilst the efficiency measure focuses on the core activities that Network Rail undertakes to operate, maintain and renew the rail network.

⁸⁹ Other costs include the elements of traction electricity, industry costs and rates that are controllable by Network Rail.

⁹⁰ The efficiency numbers include the effects of two changes to the calculation. Firstly, it now excludes some civils costs that were previously included as Network Rail were not sure of the regulatory treatment as they were civil adjustment mechanism related costs. We have also corrected the calculation of the renewals unit rates for the end of CP4, which is the baseline.

period. Although the underlying calculation is complex, Network Rail estimates that around 6% of this improvement relates to changes in the underlying calculation. This indicates that Network Rail’s efficiency in the first two years of the control period was -22.8% once restated for changes in the underlying calculation.

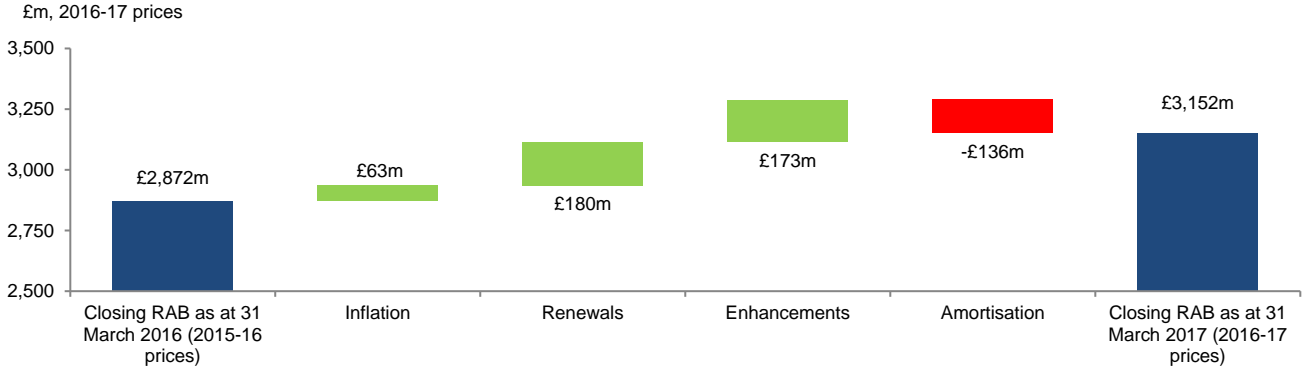
3.38 By the end of CP5, Network Rail in Wales is currently forecasting OSMR efficiency of 2.4% (i.e. it will exit CP5 2.4% more efficient than it started CP5) compared to our PR13 assumption of 20.2%. This compares favourably to the position for Great Britain overall.

3.39 Network Rail’s latest end of CP5 forecast of 2.4% is 13.6 percentage points worse than the 16.0% end of CP5 OSMR efficiency improvement we reported in our 2016-17 Monitor. This change is because Network Rail now has a more detailed understanding of its latest business plan. One consequence of this in Wales is that some of the underspend that was previously treated as an efficiency has now been reclassified as a deferral.

Regulatory Asset Base

3.40 As shown in Figure 3.3, the RAB for Wales increased by £217m from £2,935m⁹¹ to £3,152m in 2016-17. This was made up of RAB additions of £180m for renewals and £173m for enhancements and a reduction of £136m for the amortisation charge⁹².

Figure 3.3: RAB movement in 2016-17 in Wales

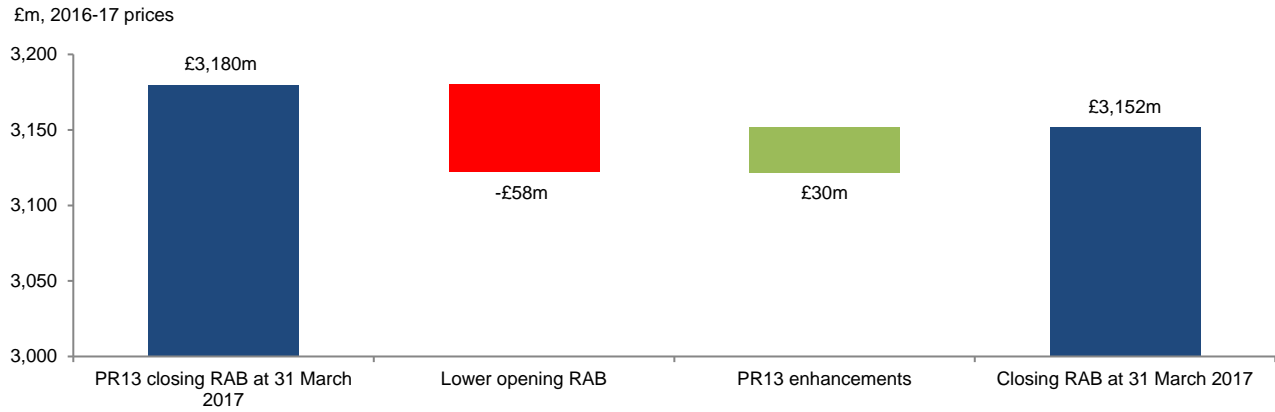


3.41 The main reason for the difference of £28m between the actual closing RAB at 31 March 2017 of £3,152m and our PR13 determination assumption of £3,180m is due to lower enhancement expenditure in previous years than we assumed. However, Network Rail partially caught up on this in the year, as shown in Figure 3.4.

⁹¹ This is the closing RAB balance as at 31 March 2016 of £2,872m plus the inflation adjustment of £63m.

⁹² The explanations listed here include, where relevant, the cost of capitalised financing included in RAB additions, which is excluded in Tables 3.1, 3.2 and 3.3.

Figure 3.4: Actual RAB at the end of 2016-17 compared to PR13 in Wales

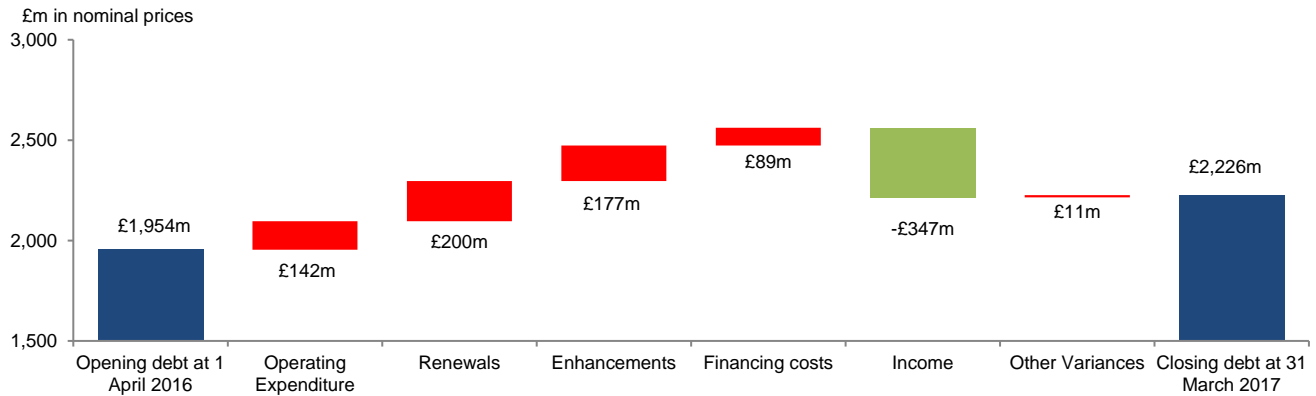


Net debt

3.42 Network Rail’s net debt in Wales increased by £272m from £1,954m to £2,226m in 2016-17.

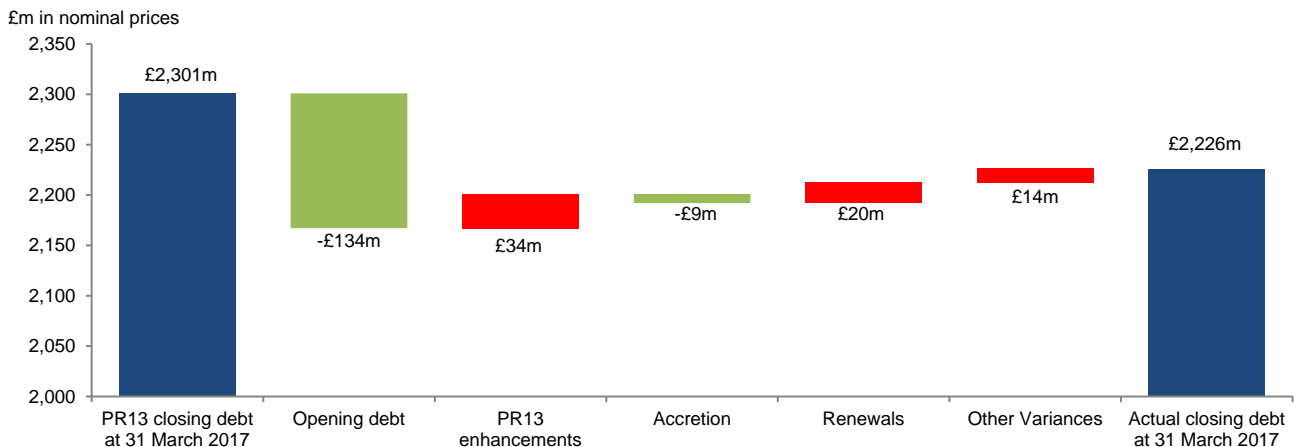
The reasons for this are summarised in Figure 3.5 and are for the same reasons as discussed in the income and expenditure sections.

Figure 3.5: Movement in net debt in 2016-17 in Wales



3.43 Compared to our PR13 determination of £2,301m, Network Rail’s actual closing net debt in Wales was £2,226m, which was £75m lower than we assumed in PR13. The reasons for this difference are summarised in Figure 3.6.

Figure 3.6: Closing net debt in 2016-17 compared to PR13 in Wales



3.44 These variances are mainly driven by the £134m lower than expected opening net debt for the year largely due to lower enhancements in previous years than we assumed in our PR13 determination, partially offset by £34m higher enhancement expenditure and £20m higher renewals expenditure.

Financial indicators

3.45 Our PR13 determination included forecasts of a number of financial indicators, including the net debt/RAB ratio⁹³ and the adjusted interest cover ratio (AICR) in order for us to incentivise Network Rail to maintain an appropriate financial position.

3.46 For 2016-17, the AICR is 0.15 index points lower (i.e. worse) than our PR13 determination assumption largely due to lower actual inflation compared to our PR13 assumption.

3.47 It also decreased by 0.12 index points compared to 2015-16. This is largely because financing costs were higher, partly offset by lower income.

3.48 The net debt/RAB ratio at the end of 2016-17 is 70.7%, 1.6 percentage points lower (i.e. better) than our PR13 assumption. This is mainly because Network Rail has spent less on financing costs than assumed in our PR13 determination.

3.49 The net debt/RAB ratio increased by 2.6 percentage points between 2015-16 and 2016-17. This is mainly due to the enhancements expenditure of £177m that was debt funded and the increase in financing costs.

⁹³ The net debt/RAB ratio is a key measure of financial sustainability for companies regulated by economic regulators. Gearing is similarly a key ratio for other companies.

4. Route analysis

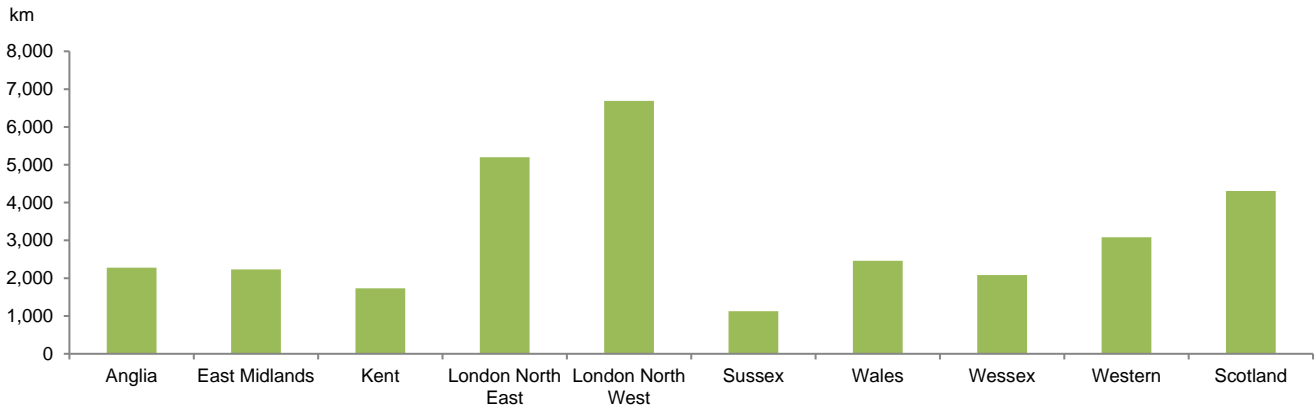
Introduction

- 4.1 This chapter sets out financial data at a route level for 2016-17. It also shows data for the preceding year (2015-16).
- 4.2 Network Rail's routes are the geographic sub-divisions of its railway business and Network Rail has devolved responsibility for day-to-day management to the routes. Since 2011-12, we have required Network Rail to report on its routes as business segments in its regulatory accounts. Route level reporting allows us, and Network Rail's stakeholders, to consider each route's individual financial outcomes. It will also provide useful information for the route based approach we will use for PR18.
- 4.3 Network Rail's regulatory financial statements have included detailed route-level financial information since the start of CP5. The reporting has improved over time but there is more to do. In particular, the standard of the commentary supporting the analysis could be improved. As route devolution progresses, from next year we expect the regulatory financial statements to include more meaningful route-specific explanations of income and expenditure variances.
- 4.4 For CP5, Network Rail merged the Sussex and Kent routes into 'South East' and the London North East and East Midlands routes into 'LNE and East Midlands' (the 8 routes are shown below). However, we require Network Rail to report on the 10 routes per our PR13 determination because the route efficiency benefit sharing mechanism (REBS) is based on 10 routes. To illustrate the differences in route size, we have included Figure 4.2, which shows track km by route.

Figure 4.1: Network Rail Route map



Figure 4.2: Track km by Route



4.5 In this chapter, we draw out the key variances as explained in Network Rail’s regulatory financial statements for 2016-17 and highlight them by using examples from routes. This allows route issues to be identified but the analysis cannot be used to draw conclusions about the relative performance of the routes. This is because:

- a) financial data in this assessment has not been fully scaled to reflect the sizes of the different route businesses (but percentage changes have been shown on charts); and
- b) the data has not been normalised to reflect differences in the physical, geographical and operational characteristics of the routes.

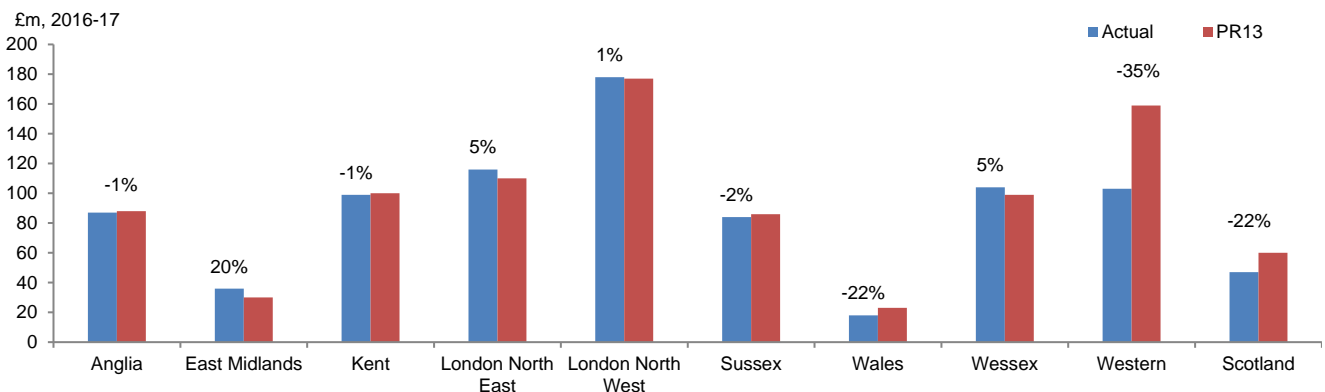
Income and expenditure at route level

Other single till income

4.6 The principal sub-categories of OSTI are:

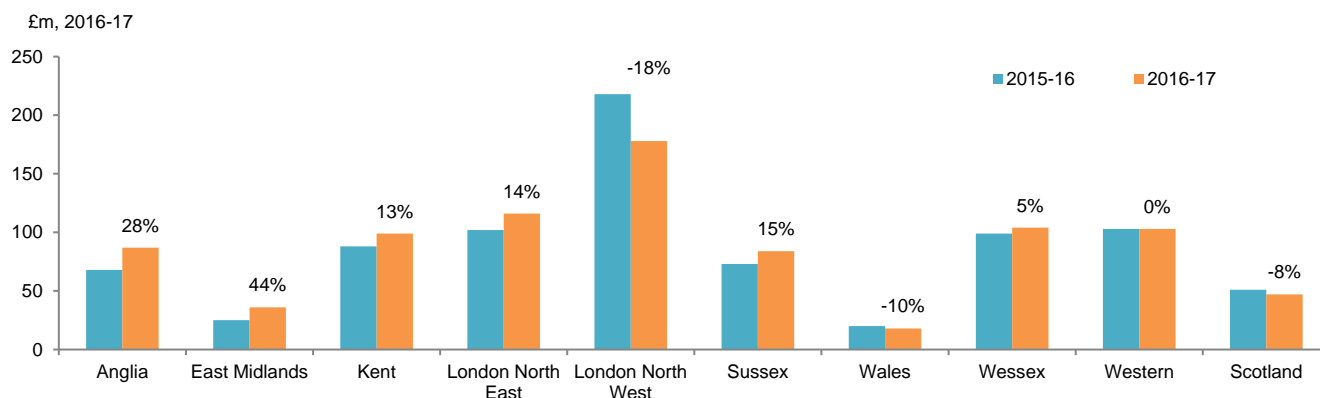
- a) income from freight and open access train operator charges;
- b) income from charges related to stations and depots; and
- c) income from properties and property sale proceeds.

Figure 4.3 Other single till income 2016-17 compared to our PR13 assumptions



Source: Network Rail’s regulatory financial statements and our own analysis

Figure 4.4 Other single till income 2016-17 v. 2015-16



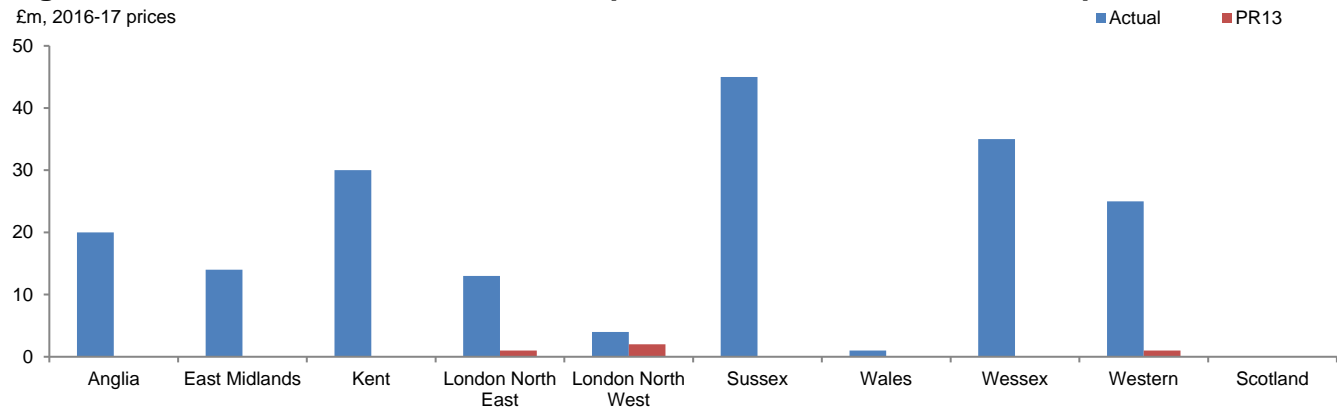
Source: Network Rail's regulatory financial statements and our own analysis

- 4.7 The most significant variances compared to our PR13 determination were in Western (-35%) because of the lower Crossrail facility and financing charge explained in chapter 1, Scotland (-22%) mainly due to lower freight income and lower property income, and Wales (-22%) largely as a result of changes to the Welsh Valley lines project.
- 4.8 The most significant variances compared to 2015-16 were in East Midlands (44%) because of increased income from rental income and depot services, and Anglia (28%) largely due to higher property sales and increased open access income.
- 4.9 London North West's OSTI in 2016-17 was lower than in 2015-16, largely because in 2015-16 it had some one-off income from the disposal of rights associated with the Grand Central shopping centre in Birmingham.
- 4.10 Kent referred to higher income associated with the offer of additional facilities to train operators, and Western mentioned that its income was higher because stations at Reading and Bristol Temple Meads had been transferred to its management from train operators.
- 4.11 Anglia, Kent, and London North East reported that they had lower freight charge income in 2016-17 as a result of changing UK industrial and energy generation profiles. Anglia reported that its open access charge income had increased. For Kent, income from its HS1 operating contract was higher than had been expected.
- 4.12 Kent and Wessex had lower income from their commercial estates relating to rent and occupancy levels. Those routes also referred to the successful conclusion of commercial/contractual claims in the year.

Schedule 8

- 4.13 Schedule 8 costs consist of payments made by Network Rail to train operators to compensate them for the impact of unplanned service disruption. In theory, the assumed level of Schedule 8 payments at the time of our periodic review was zero. However, for charter train operators, forecast costs were included in Network Rail's revenue requirement for CP5.

Figure 4.5 Schedule 8 2016-17 actual expenditure and our PR13 assumptions



Source: Network Rail's regulatory financial statements and our own analysis

Figure 4.6 Schedule 8 actual expenditure 2016-17 v. 2015-16



Source: Network Rail's regulatory financial statements and our own analysis

4.14 Network Rail has incurred more schedule 8 expenditure than we assumed, largely because of worse train performance than we expected and the effect of some one-off events.

4.15 On most routes, expenditure has also increased year on year as illustrated in Figure 4.6 and the routes generally attributed this to one-off events. For example:

- (a) Western (213%) – a derailment at East Somerset junction;
- (b) Wessex (106%) – a fire at Vauxhall station and a landslip at Wrecclesham; and
- (c) East Midlands (100%) – damage to overhead line electrification equipment (Luton) and damage to a bridge following engineering work (Barrow on Soar).

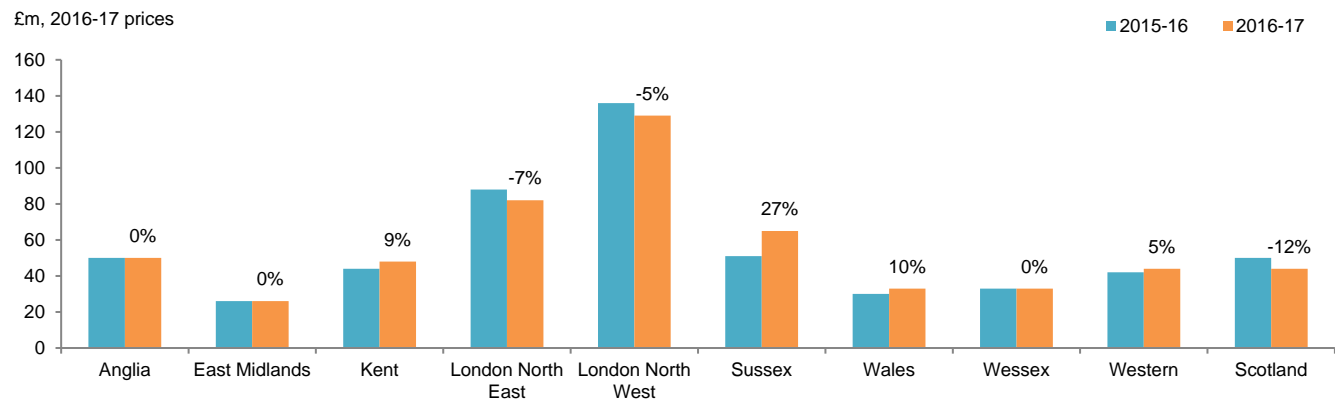
Network operations expenditure

Figure 4.7 Network operations 2016-17 actual expenditure and our PR13 assumptions



Source: Network Rail's regulatory financial statements and our own analysis

Figure 4.8 Network operations actual expenditure 2016-17 v. 2015-16



Source: Network Rail's regulatory financial statements and our own analysis

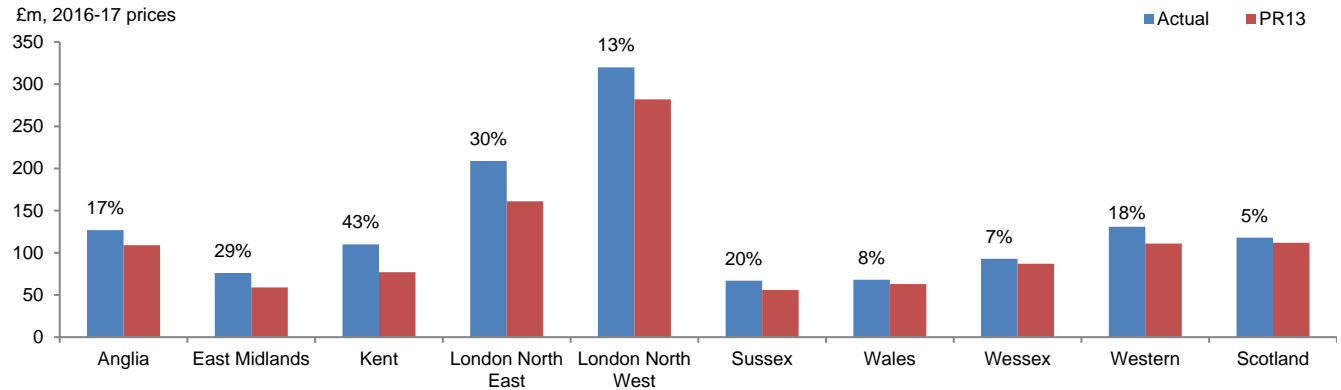
- 4.16 The cost of operating the network was higher in all routes than we assumed in our PR13 determination for the reasons set out earlier in the document. The most significant variances compared to our PR13 determination were in Sussex (103%) and East Midlands (63%), who spent more than our determination due to factors such as expenditure on performance improvement and timetabling.
- 4.17 The most significant variances compared to 2015-16 were in Sussex (27%) due to extra expenditure on train performance improvement initiatives, and Scotland (-12%) largely due to non-recurring costs incurred in the previous year.
- 4.18 Anglia route reported that it had been particularly affected by higher costs relating to safety, signalling, and asset management. However, it noted that some of this expenditure would lead to overall savings, for example in relation to the introduction of digital railway technology.
- 4.19 London North West's costs were higher because of property development at Birmingham New Street and London Euston stations and there were also higher costs in Western as a result of the transfer of stations at Reading and Bristol Temple Meads to Network Rail's

management. However, in both routes the additional costs were offset by higher income levels.

4.20 Wessex route had transitional costs from the consolidation of its depots. They think this will deliver long-term efficiency savings.

Maintenance expenditure

Figure 4.9 Network maintenance 2016-17 actual expenditure and our PR13 assumptions



Source: Network Rail's regulatory financial statements and our own analysis

Figure 4.10 Network actual maintenance expenditure 2016-17 v. 2015-16



Source: Network Rail's regulatory financial statements and our own analysis

4.21 Expenditure on maintenance in 2016-17 was higher in all routes than the levels assumed in our PR13 determination largely because renewals activity has been lower. The most significant variances compared to our PR13 determination were in Kent (43%) because of additional maintenance, and London North East (30%) largely due to additional maintenance and higher civils inspections costs.

4.22 The most significant variances compared to 2015-16 were in Kent (17%) because of extra maintenance expenditure, and East Midlands (15%) largely due to extra maintenance in 2016-17 and the need for additional civils inspections.

4.23 We welcome Network Rail's progress in improving its route-level reporting, however there were not many other examples of route specific issues affecting maintenance expenditure in the regulatory financial statements.

Renewals expenditure

4.24 As noted in the earlier chapters of this document, expenditure on renewals during CP5 has been impacted by Network Rail’s wider financial performance leading to significant deferrals. The comparisons in this section do not take account of work that has been deferred, although deferrals are adjusted for in the section on financial performance below.

Figure 4.11 Renewals 2016-17 actual expenditure and our PR13 assumptions



Source: Network Rail’s regulatory financial statements and our own analysis

Figure 4.12 Renewals actual expenditure 2016-17 v. 2015-16



Source: Network Rail’s regulatory financial statements and our own analysis

4.25 The variances on routes’ expenditure on renewals in 2016-17 compared to our PR13 determination were largely because of the combination of two main factors - the increased cost of delivering renewals work (which increases expenditure) and deferrals to meet the financial challenges Network Rail is facing as a result of the higher costs (which reduces expenditure).

4.26 Most routes spent less in 2016-17 than in 2015-16 as a result of deferrals to meet the financial challenges Network Rail is facing and the largest reduction in percentage terms was in Wessex (33%) although this reflected a planned reduction from higher levels of renewal activity in the first two years of CP5.

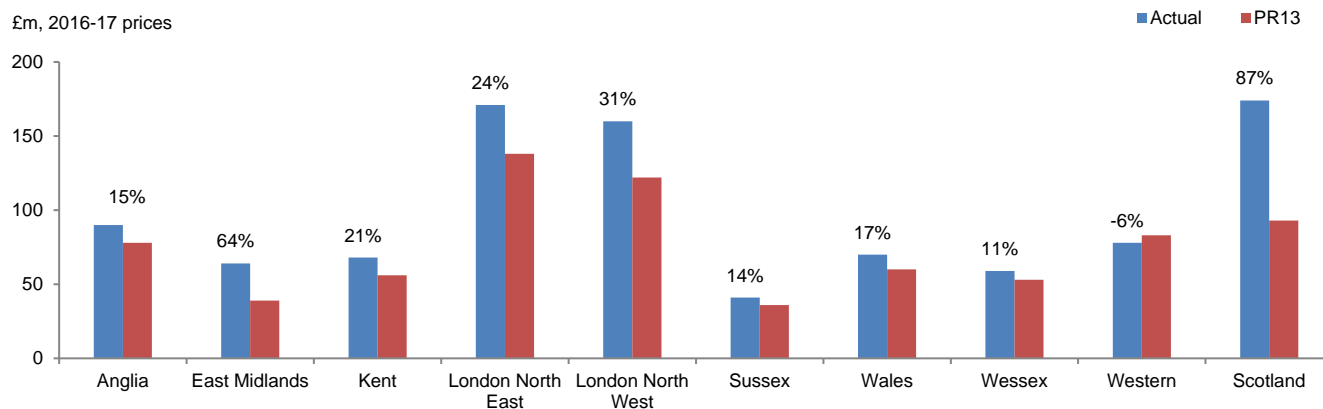
4.27 Anglia route reported that its costs had been affected by higher contractor rates and higher expenditure on information technology renewals in the first three years of CP5 (although the

latter is subject to the 'spend to save' mechanism referred to in our PR13 determination, so largely will not count as financial underperformance).

4.28 London North East reported that expenditure on the renewal of electrical plant in the control period to date has been higher than was assumed in our PR13 determination. This route also reported that there had been increased expenditure on overhead line renewals in 2016-17, mostly relating to additional works on the East Coast Main Line.

Expenditure on renewing track

Figure 4.13 Renewals – Track 2016-17 actual expenditure and our PR13 assumptions



Source: Network Rail's regulatory financial statements and our own analysis

Figure 4.14 Renewals – Track actual expenditure 2016-17 v. 2015-16



Source: Network Rail's regulatory financial statements and our own analysis

4.29 The most significant variance on track renewals was in Scotland where Network Rail spent 87% more than we assumed in our PR13 determination and 47% more than in 2015-16. This was largely because of higher costs and increased work volumes. Expenditure in East Midlands was 64% higher than we assumed in our PR13 determination as a result of higher costs, access issues and plant failures, particularly in relation to high output operations. Expenditure in Wessex was 38% lower than in 2015-16, mainly reflecting lower activity, especially on high output.

Expenditure on renewing signals

Figure 4.15 Renewals – Signalling 2016-17 actual expenditure and our PR13 assumptions



Source: Network Rail's regulatory financial statements and our own analysis

Figure 4.16 Renewals – Signalling actual expenditure 2016-17 v. 2015-16



Source: Network Rail's regulatory financial statements and our own analysis

4.30 The most significant variances compared to our PR13 determination were in Anglia (-72%) and East Midlands (-49%). These expenditure variances were mainly due to deferrals.

4.31 The most significant variances compared to 2015-16 were in Scotland (66%) because of increased volumes and higher unit costs. An expenditure reduction in London North East (-40%) was largely due to reduced volumes, but the route also referred to higher costs associated with the introduction of new technology, for example on the East Nottingham scheme.

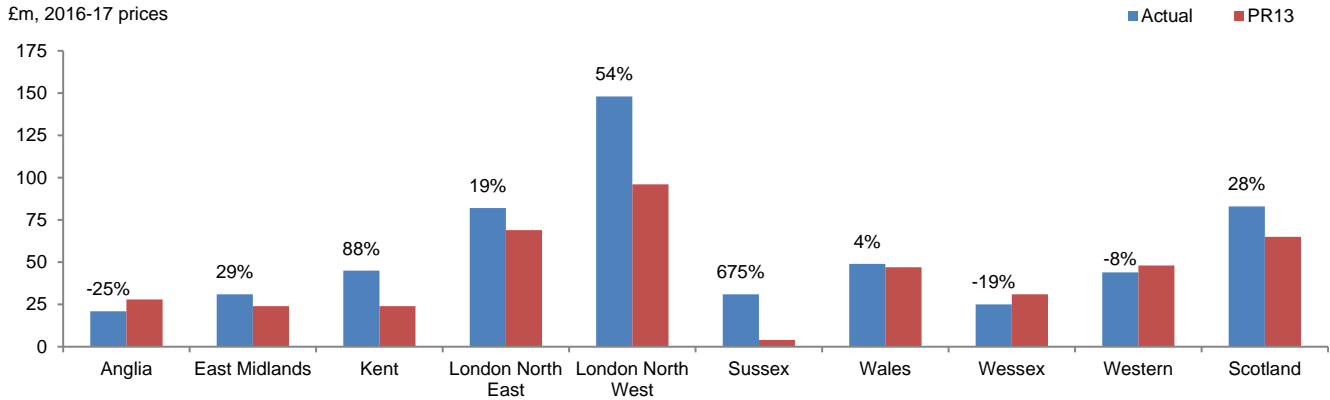
4.32 Several routes (London North West, Anglia, Kent and Western) also reported higher contract costs for signalling renewals than had been anticipated in our PR13 determination. Examples reported included programmes in the East Kent, Bristol and Bromsgrove areas. Anglia also mentioned the lack of contractor resources.

4.33 Network Rail has said that unit costs rose because of more complex scheme requirements and higher contractor prices.

Expenditure on renewing civils assets

4.34 Civils structures include bridges, tunnels, retaining walls, embankments, and drainage arrangements.

Figure 4.17 Renewals – Civils 2016-17 actual expenditure and our PR13 assumptions



Source: Network Rail's regulatory financial statements and our own analysis

Figure 4.18 Renewals – Civils actual expenditure 2016-17 v. 2015-16



Source: Network Rail's regulatory financial statements and our own analysis

4.35 The most significant variances compared to our PR13 determination were in Sussex (675%) and Kent (88%). The higher expenditure in Sussex was attributed to an acceleration of activity (including bringing assets up to required standards) and increased contractor costs. Higher expenditure in Kent was largely a result of remedial works following a collapse of a sea wall in Dover with high costs because of the time critical nature of the incident.

4.36 The most significant variances compared to 2015-16 were in Wessex (-51%) and Anglia (-45%) largely due to planned reductions in activity in comparison to the first two years of CP5.

4.37 As with other renewals, civils assets renewal schemes have been re-profiled. But there may also be greater inherent volatility in civils expenditure because significant unexpected expenditure might relate to a single site.

4.38 There were a number of incidents, which caused Network Rail to incur significant expenditure during 2016-17 in response to asset damage incidents or to pre-empt safety concerns. Examples included:

- (a) damage at the Camden viaduct in Anglia;
- (b) the collapse of a sea wall at Dover in Kent;
- (c) damage to a bridge on the Settle-Carlisle line; and
- (d) a landslip at Wrecchlesham in Wessex.

4.39 Anglia also commented that improving asset condition information was revealing additional requirements for renewals. London North West said that it had undertaken extra work to improve asset condition, notably at Liverpool Moorfields, Manchester Victoria and Carlisle.

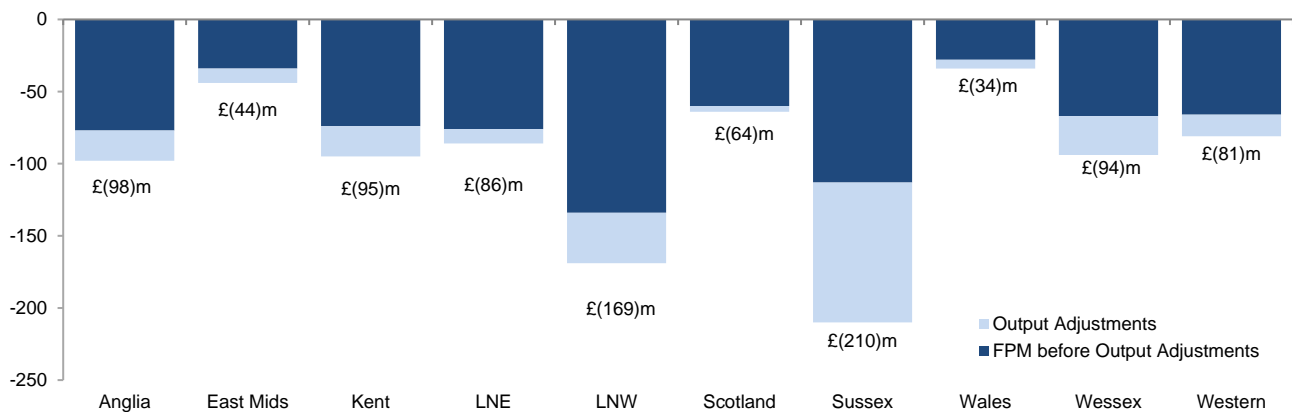
4.40 Routes also referred to upward pressure on costs as a result of increasing contractor rates and shorter asset possession windows.

Financial performance at route level

4.41 A route breakdown of net financial performance and a detailed analysis is shown below.

Figure 4.19: Financial performance measure (FPM) by route

£m, 2016-17 prices



Source: Network Rail's Regulatory Financial Statements

Figure 4.20: Detailed analysis of FPM by route

Financial Performance Measure (FPM) by route - net	Anglia	East Mids	Kent	LNE	LNW	Scotland	Sussex	Wales	Wessex	Western	GB	GB
Income	2016-17											CP5 Cumulative
Fixed income	0	0	0	0	0	0	0	0	0	0	0	0
Variable income	0	2	(2)	4	(2)	4	(2)	1	(3)	0	2	24
Other single till income	(1)	6	3	7	1	(13)	(2)	(2)	5	3	7	39
Opex memorandum account	2	1	(1)	(3)	1	1	(4)	(2)	0	0	(5)	16
Expenditure												
Network operations	(8)	(10)	(10)	(11)	(26)	(4)	(33)	(6)	(4)	(10)	(122)	(272)
Support costs	11	8	18	9	23	8	8	1	10	4	100	214
Industry costs and rates	(1)	(2)	0	(2)	(6)	(3)	(3)	(1)	(3)	(1)	(22)	(41)
Traction electricity	2	(1)	3	1	4	0	(1)	0	3	1	12	13
Network maintenance	(18)	(9)	(18)	(30)	(41)	(1)	(11)	(5)	(13)	(11)	(157)	(344)
Schedule 4 costs	(14)	1	2	4	(18)	(14)	(9)	5	(6)	(5)	(54)	(113)
Schedule 8 costs	(20)	(14)	(30)	(12)	(2)	0	(45)	(1)	(35)	(24)	(183)	(395)
Renewals (net of 25% RAB sharing mechanism)	(26)	(16)	(22)	(44)	(54)	(13)	(8)	(18)	(21)	(18)	(240)	(670)
PR13 Enhancements (net of 25% RAB sharing mechanism)	(4)	0	(17)	1	(23)	(25)	(3)	0	0	(5)	(76)	(148)
Non PR13 Enhancements	0	0	0	0	9	0	0	0	0	0	9	(11)
Net financial out / (under) performance before adjusting for under-delivery of outputs and adjustments for other matters	(77)	(34)	(74)	(76)	(134)	(60)	(113)	(28)	(67)	(66)	(729)	(1,688)
Less: adjustments for under-delivery of outputs and reduced sustainability												
Under-delivery of train performance (PPM)	(12)	(6)	(13)	(4)	(22)	0	(66)	(3)	(17)	(9)	(152)	(328)
Under-delivery of train performance (C&SL)	(5)	(2)	(5)	0	(3)	0	(29)	(1)	(6)	(2)	(53)	(103)
Missed milestones for ORBIS	0	0	0	0	0	0	0	0	0	0	0	(41)
Missed Enhancement milestones	(4)	(2)	(3)	(6)	(10)	(4)	(2)	(2)	(4)	(4)	(41)	(6)
Total adjustment for under-delivery of outputs	(21)	(10)	(21)	(10)	(35)	(4)	(97)	(6)	(27)	(15)	(246)	(478)
Net financial out / (under) performance	(98)	(44)	(95)	(86)	(169)	(64)	(210)	(34)	(94)	(81)	(975)	(2,166)

Source: Network Rail's Regulatory Financial Statements

4.42 All of the routes are underperforming against our financial performance measure for CP5. In the commentary below, we have identified some of the specific reasons the routes have provided for this underperformance.

Anglia

4.43 Anglia route noted that some efficiencies expected from the introduction of route operating centres (ROCs) had not yet materialised and mentioned that deferring renewals had increased maintenance costs. Spending on vegetation control and lineside clearance was also higher than expected.

London North East / East Midlands

4.44 The London North East and East Midlands routes referred to higher initial costs relating to ROCs.

London North West

4.45 London North West commented that damage to the network caused by adverse weather had contributed to FPM underperformance including, for example, the need to rectify damage on the Settle-Carlisle line.

4.46 The route also said that increased property costs reflected significant expenditure on new offices in Birmingham to replace leased premises, but which should yield ongoing operational cost savings.

Kent/Sussex

4.47 The Kent and Sussex routes said that expenditure on the Kent power supply upgrade programme had been lower than expected in 2016-17 due to the re-profiling of work. They also referred to the major investment undertaken during the year at London Bridge as part of the Thameslink programme, contributing to higher cost levels than were anticipated in our PR13 determination.

Appendix: Calculation of renewals efficiency

In this appendix, we explain at a high level, the process Network Rail uses to calculate the volumes-adjusted renewals efficiencies. Network Rail bases its calculation on the information in its FPM analysis. However, the FPM analysis uses our PR13 determination as the baseline, whereas the efficiency analysis baseline is the efficiency level at the end CP4. Also, the mix of work on renewals jobs is always different in any year compared to the mix we assumed in our PR13 determination.

As a result of these factors and other issues, the process Network Rail uses to calculate renewals efficiency is complex.

At a high level the process is:

- the starting point is Network Rail's actual expenditure on renewals (line **A**);
- actual renewals expenditure is then adjusted for the amount of FPM underperformance on line **B** (by definition this is the difference between the PR18 post-efficient baseline and actual spend) to obtain line **C**;
- line **C** is then the post-efficient equivalent level of expenditure if Network Rail had delivered the PR13 efficiency assumption. By equivalent we mean the pre-efficient baseline consistent with the mix of work that Network Rail has done in CP5 instead of the mix we assumed in our determination;
- backing out the efficiency assumption (on line **D**) gives the pre-efficient equivalent baseline on line **E**;
- to derive the pre-efficient baseline for the efficiency calculation on line **G**, Line **F** then adjusts for:
 - the difference between the expected CP4 unit cost exit rate assumed in our determination (published in October 2013), which forms the baseline for calculating FPM, and the actual CP4 unit cost exit rate (March 2014). This is because FPM is measured against our determination baseline, whilst efficiency measures cost movements compared to the CP4 exit point (March 2014);
 - differences in the scope of the FPM calculation compared to the efficiency calculation (notably CP4 rollover projects which have no pre-efficient equivalent and expenditure incurred as reparations for an enforcement issue); and
 - the element of the cost of spend to save renewals projects borne by Network Rail.
- the difference between the actual spend on line **A** and the pre-efficient baseline for the efficiency calculation on line **G**, gives the quantified amount of efficiencies (on line **H**), which

can also be expressed as a percentage by dividing by the pre-efficient baseline for the efficiency calculation on line **G**.

Table 1: Calculation of CP5 renewals efficiency

£m, 2016-17 prices	2014-15	2015-16	2016-17
(A) Actual Expenditure	3,045	3,145	2,774
(B) Less: FPM underperformance	768	952	960
(C) Post-efficient equivalent expenditure (A+B)	2,277	2,193	1,814
(D) PR13 efficiency assumption	7.2%	10.7%	14.7%
(E) Pre-efficient equivalent (C/(1-D))	2,454	2,456	2,127
(F) CP4 exit rate and other adjustments	327	372	243
(G) Pre-efficient baseline (E+F)	2,781	2,828	2,370
(H) Efficiency (£m) (G-A)	(264)	(317)	(404)
(I) Efficiency (%) (H/G)	-9.5%	-11.2%	-17.1%



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