



Periodic Review 2013: Electrification asset usage charges in CP5 – addendum to Network Rail’s conclusions

Network Rail

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1. Purpose of this document

This document explains some changes that have been made to the methodology for calculating the electrification asset usage (EAU) charges for CP5¹ since our conclusions on EAU charges published in February 2013².

All values stated in this document are in 2012/13 prices, unless otherwise stated.

2. Background

Our electrification assets are comprised of the AC (alternating current) and DC (direct current) overhead lines and the DC conductor rail systems supported by their relevant distribution assets. These assets are used by trains to draw power from our electricity network into their traction packages. The EAU charge is designed to recover Network Rail's variable maintenance and renewal costs associated with electrification assets.

In 2011/12 we received £9m³ in EAU charges income, this represents 0.1% of our c.£6billion revenue requirement for the same year.

In February 2013, we published the conclusions to our consultation on CP5 EAU charges. In that document we set out a draft price list for EAU charges. These prices were calculated by dividing the annual average EAU cost (based on a 35-year average) of £22.4m by annual forecast traffic in 2014/15. The EAU charge model which calculated the rates was provided to ORR as part of our SBP⁴ submission.

The annual average EAU cost was calculated based on the variability assumptions set out in Table 1, below, which we proposed in our February 2013 conclusions document. V1 represents the percentage variability of the cost category which varies with traffic, V2 represents the level of variability which describes the extent to which Network Rail costs increase with traffic. These are then combined to generate an overall traffic variability factor for each cost category.

¹ Control Period 5, this is the regulatory period from 1 April 2014 – 31 March 2019.

² Network Rail, (February 2013), 'Periodic Review 2013: Traction Electricity and Electrification Asset Usage Charges in CP5 – Conclusions of Network Rail's Consultation'. Accessible here: <http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784907>

³ 2011/12 prices

⁴ Network Rail, (January 2013), 'Strategic Business Plans 2014-19', accessible here: <http://www.networkrail.co.uk/publications/strategic-business-plan-for-cp5/>

Table 1: Proposed CP5 variability assumptions (Feb 2013)

	Activity	V1 (%)	V2 (%)	Overall variability (%)
AC	Contact wire renewal	80%	90%	72%
	Mid-life refurbishment renewal	60%	70%	42%
	OLE Other	25%	40%	10%
	OLE maintenance	80%	15%	12%
DC	Conductor rail renewal	60%	90%	54%
	Transformer/rectifier renewal	40%	10%	4%
	Electrical traction equipment maintenance	40%	52%	21%

The variability assumptions in Table 1 were determined by assessing all activities (cost areas) for those assets which may be affected by changes in traffic. The scope of the assessment included those assets between the grid supply points and the contact system / train interface.

Once appropriate activities had been identified then values for V1 and V2 were estimated using, in the main, engineering assessment which was informed by the CP5 Electrical Power asset policy, Network Rail standards and knowledge of asset degradation relationships.

3. Independent reporter review

In April 2013, ORR and Network Rail jointly commissioned AMCL (Asset Management Consulting Limited), the Independent Reporter for asset management, to undertake a review of the methodology and engineering assumptions used in calculating EAU rates.

In May 2013, AMCL issued its draft report⁵. In that report it made four short term recommendations:

1. Network Rail should remove the 'Transformer Rectifier Unit Renewal' activity from the proposed EAU charge as these should be managed and operated within rated capacity.
2. Network Rail should remove the AC planned maintenance factor from the proposed EAU charge as there is not a linear relationship between traffic and spend, and on review of the figures put forward by Network Rail the costs appear to be minimal.
3. Network Rail should determine whether it is feasible to carry out an analysis of FMS and Ellipse data on unplanned maintenance to produce a single percentage figure for unplanned maintenance variability by traffic which could be applied to the predicted unplanned maintenance costs. Network Rail should either
 - (a) If feasible, carry out this analysis using the Business Objects Analysis tool developed by the FMS team; or
 - (b) If not, this should be looked at for inclusion in the next review and be added to the longer-term recommendation list.

⁵ We expect AMCL's final report to be published shortly after ORR's Draft Determination. All consultants' reports are available at: <http://www.rail-reg.gov.uk/pr13/publications/consultants-reports.php>.

4. Network Rail should reverse the error introduced through the conversion of the CP4 figures from £/vehicle mile and £/KGTm to £/vehicle km and £/KGTkm in the second release of the EAU charge model.

It also made two longer term recommendations:

5. Network Rail should establish, where possible, revised cost categories that enable 'wear and tear costs' to be recorded as this would enable a reduced reliance on engineering judgement in future.
6. Where judgement is still required, this should be documented such that it can support statements on EAU charges referenced in future periodic reviews.

ORR formally asked Network Rail to carry out more work on the EAU charge model to reflect the recommendations made by AMCL. It also asked Network Rail to calculate rates by dividing annual average costs (based on 35 years) by annual average traffic (based on 35 years). Network Rail was then required to issue an addendum to its consultation setting out the changes that have been made since Network Rail's conclusions published in February 2013.

Following receipt of AMCL's draft report, we reflected recommendations 1, 2 and 4, in our EAU charge model. We considered that recommendation 3 was a longer term objective (i.e. more appropriate for the next review of charges for CP6⁶). We did not consider that we had sufficient time to carry out this analysis in time for the conclusion of PR13 (2013 Periodic Review). In addition to AMCL's recommendations, we made some additional refinements to the model, these are described below.

4. Description of changes made to the EAU charge model

The changes that we have made to the EAU charge model, since our February 2013 conclusions, update it so that:

- the renewals costs are consistent with the January 2013 SBP submission;
- the RPI uplift is consistent with the billing approach;
- the maintenance spend reflects only the costs associated with AC electrification and DC electrification from the overall E&P (electrification and plant) maintenance expenditure. Actual historic costs for all E&P maintenance activities (updated to take account of the new electrification programme) are used to determine the split as 49% for OLE maintenance and 8.5% for conductor rail maintenance;
- only appropriate activities of conductor rail renewal costs are recovered through the charge;
- only appropriate OLE Other and mid life refurbishment activities costs are recovered through the charge;
- variability percentage for 'transformer rectifier unit renewal' variability is now 0%, following AMCL's recommendation (1);
- the AC planned maintenance factor is removed by adjusting the V2 variability from 15% to 10%, reflecting AMCL's recommendation (2);

⁶ Control Period 6, we expect this to be the regulatory period from 1 April 2019 – 31 March 2024.

- the CP4 rates are correctly converted from a mile to kilometre based charge following AMCL recommendation (4); and
- costs are now divided by 35-year annual average traffic as per ORR's request.

These changes reflect the short term draft recommendations made by AMCL, and some additional refinements to reflect issues we had identified ourselves, subsequent to having published our conclusions. We aim to consider AMCL's longer term recommendations as part of the next review of charges for CP6.

The updated variability assumptions compared to those proposed in our February 2013 conclusions are set out in Table 2, below. These reflect the short-term recommendations made by AMCL.

Table 2: Updated CP5 variability assumptions

	Activity	Variability (%) (proposed in Feb 2013)	Updated variability (%)
AC	Contact wire renewal	72%	no change
	Mid-life refurbishment renewal	42%	no change
	Component change renewal	10%	no change
	OLE maintenance	12%	8%
DC	Conductor rail renewal	54%	no change
	Transformer/rectifier renewal	4%	0%
	Electrical traction equipment maintenance	21%	no change

5. Impact on charges

After reflecting the changes above, the long-run⁷ annual average amount to be recovered through EAU charges is **£22.1m**, which is slightly lower than the £22.4m proposed in February 2013. This amount is then used to calculate the CP5 EAU rates (see Table 3, below). The rates are calculated by dividing the long-run annual average EAU cost (for the four categories: passenger AC, passenger DC, freight AC and freight DC) by the long-run annual average traffic for the same four categories⁸.

The updated CP5 EAU rates are compared against the current CP4 EAU rates in Table 3, below.

⁷ In this paper, "long-run" is taken to mean 35 years.

⁸ The traffic forecast is split by passenger AC; passenger DC; freight AC; and freight DC using actual traffic levels for these four categories in 2011/12. Source: Network Rail's Track Access Billing System (TABS).

Table 3: Comparison of updated proposed CP5 EAU rates and CP4 rates (12/13 prices)

	DC 'third rail' network (£/electrified vehicle mile)	AC 'OLE' network (£/electrified vehicle mile)	DC 'third rail' network (£/kgtm)	AC 'OLE' network (£/kgtm)
	Passenger		Freight	
CP4	0.0047	0.0124	0.0628	0.1178
CP5 (May 2013)	0.0077	0.0174	0.0534	0.2664
Difference (%)	64%	40%	-15%	126%

As shown in Table 3, above, EAU charges are set to increase overall, by 54% on average. The exception to this is the freight DC rate which is set to decrease by around 15%. This is largely due to the estimates of variable DC EAU costs decreasing by around 58% on average to £4m (from £9m), while the estimates of variable AC EAU costs rose on average by around 36% to £18m (from £14m). The difference in the EAU rates themselves will also depend on the extent to which the forecast traffic used to calculate the CP5 EAU rate, differs from the traffic used to forecast the CP4 EAU rates.

Based on the proposed CP5 EAU rates set out in Table 3, we are forecasting total EAU income over CP5 of **£74.2m** (which is an average, in CP5, of **£14.8m** per annum). This is lower than the £110.9m we forecast in our SBP for EAU income over CP5 (this was an average of £22.2m per annum).

6. Next steps

This document is provided as an addendum to our February 2013 conclusions on EAU charges in CP5. It reflects refinements to the methodology we have used, which have changed the proposed CP5 EAU rates compared to those set out in our conclusions document. This document, together with our February 2013 conclusions, sets out our final proposal to ORR on EAU charges for CP5.

We understand that ORR will make its determination on EAU charges in CP5, and all aspects of PR13, in its Draft Determination which is due to be published in June 2013.

It is likely that we will then update our proposed CP5 price lists for the EAU charge (and other charges) during ORR's consultation on its Draft Determination.

Annex A – Proposed EAU price list for CP5

The proposed price list for EAU charges in CP5 are set out in Table 4, below.

Table 4: Updated proposed CP5 EAUC rates (12/13 prices)

DC 'third rail' network (£/electrified vehicle mile)	AC 'OLE' network (£/electrified vehicle mile)	DC 'third rail' network (£/kgm)	AC 'OLE' network (£/kgm)
Passenger		Freight	
0.0077	0.0174	0.0534	0.2664