Periodic Review 2013 – Capacity Charge Conclusions and Draft Pricelists

April 2013

CONTENTS

EXECUTIVE SUMMARY

Background

The Capacity Charge is designed to neutralise the increased Schedule 8 risk to Network Rail of accommodating additional traffic. This is to avoid Network Rail being disincentivised from growing traffic on the network. It does this on a 'liquidated sums' basis, thereby avoiding transaction costs for the industry. A secondary objective of the charge is to provide appropriate incentives and price signals to train operators and funders to make efficient use of network capacity.

Since its inception in 2002, the Capacity Charge has become both an important income source for Network Rail and a significant cost to train operators. Network Rail's income from franchised train operator Capacity Charges in 2010-11 was £158m, a figure which is more than Variable Usage Charge and Electrification Asset Usage Charge income combined. This represents 3% of the company's current income.

The Capacity Charge has not been updated to account for traffic growth and changes in the way traffic is managed since its inception. Therefore, as part of the Periodic Review 2013 (PR13), ORR asked Network Rail to revisit and recalibrate the charge for CP5. In July 2012, we consulted on the structure and methodology for recalibrating the Capacity Charge for CP5. Building on the consultation, we set up an industry working group to inform work on the Capacity Charge for PR13. We are grateful to stakeholders which responded to our consultation and contributed to the working group. Technical work to recalibrate the charge commenced in 2012, and we commissioned external consultants in order to ensure independence.

Purpose of this document

The purpose of this document is to:

- conclude on the issues raised in our July 2012 consultation, and to address any points or concerns which were raised in the responses received; and
- share a set of draft pricelists with the industry, which follow from the technical recalibration exercise.

Throughout the process, Network Rail's role has been to propose tariffs based on the set of principles established by ORR. **We would emphasise, however, that any decision on Capacity Charge tariffs and policy for CP5 is ultimately a matter for ORR.** We expect ORR's decisions in relation to the Capacity Charge to form part of the broader review of charges for CP5. Later in this document, we set out the next steps and timescales for the Capacity Charge work.

Structure of the Capacity Charge: Conclusions

In our July 2012 consultation, we considered a number of important policy issues in relation to the structure of the Capacity Charge for CP5. We have now concluded on these matters. For the Capacity Charge in CP5, we propose:

- that disaggregation of tariffs across time periods, beyond the current arrangements, should not be introduced;
- that the weekend discount remains and that the discount should be increased from 25% to 33%;

- that tariffs will be set on the basis of service codes rather than service groups;
- continuing to charge a single tariff for all freight operators;
- that the freight discount is increased from 10% to 25%; and
- that underlying tariffs remain fixed in CP5.

These proposals have been formed on the basis of careful consideration of the consultation responses of stakeholders and views expressed at the working group. In making these proposals, we have sought to maximise the ability of the Capacity Charge to achieve its objectives in CP5, especially to provide appropriate compensation and incentives whilst minimising industry transactions costs. We believe that the proposals above are in line with ORR's charging principles, and are in the best interests of the industry as a whole.

Recalibration of the Capacity Charge: Conclusions

Our consultation raised a number of technical issues in relation to the recalibration process for the Capacity Charge. We shared an Invitation to Tender (ITT) for the recalibration work with stakeholders in the Autumn of 2012, and received a number of comments. We obtained a large number of bids for the recalibration work and, with input from ORR, chose a proposal from a consortium made up of Arup and Imperial College London. This proposal offered a team with a persuasive combination of operational railway knowledge and economic and econometric modelling skills, and a robust and general methodology.

The principal features of the recalibration are as follows:

- the existing methodology has been retained in broadly its current form;
- the Capacity Utilisation Index (CUI) has again been used as the basis for the Capacity Charge for CP5; and
- the final functional form used to model the relationship between congestion related reactionary delay and CUI is the exponential function.

A full documentation of the recalibration exercise is provided in Arup's report, which is being published alongside this document.

Other issues raised by stakeholders: Conclusions

In their responses to our July 2012 consultation, stakeholders raised a number of other important issues in relation to the Capacity Charge. A recurring theme was the extent to which the charge provides appropriate incentives to make efficient use of network capacity. We believe that the movement from charging at service code rather than service group for CP5 – which gained widespread industry support and will involve a step-change in the level of granularity at which the Capacity Charge is applied – will strengthen the incentive effects of the charge considerably.

Some stakeholders suggested that the Capacity Charge could be changed radically in CP5, for example by absorbing the costs into the Fixed Charge, arriving at 'bespoke' deals and/or incorporating the charge into Schedule 8 itself. We believe that the Capacity Charge in its current form provides the most appropriate way of achieving the objectives set out above. It provides appropriate compensation and price signals at the margin – albeit with the 'swings and roundabouts' associated with a liquidated sums regime – and helps avoid transactions costs. Recovering these costs through the Fixed Charge would discourage Network Rail from accommodating additional traffic. We are concerned that offering 'bespoke' charges in this area would

undermine the liquidated sums basis of the regime and lead to increased transactions costs. Whilst we believe there may be merit in integrating the Capacity Charge into Schedule 8 – especially in relation to the freight regime – this would involve a number of complex issues that cannot realistically be addressed for CP5. As such, we believe that it may be appropriate to investigate this as part of the RDG-sponsored review of charges for CP6, which we expect to begin early in CP5.

Some stakeholders requested that Network Rail and ORR clarify the position of the Capacity Charge in respect of relevant European and UK legislation. We consider that the charge is consistent with the legal framework. We have sought to clarify the relationship of the charge with the legislation by means of discussions with stakeholders and explanation contained in this document.

Draft pricelists

Draft pricelists for the Capacity Charge are set out at the end of this document (Appendix 3). These are based on the technical work undertaken by Arup and Imperial College London. We would emphasise that the pricelists are in **draft** form and **that any decision on Capacity Charge tariffs for CP5 is ultimately a matter for ORR.** We would invite the industry to highlight any perceived issues or anomalies in the pricelists presented in this document. Contact details are contained in the 'next steps' section in the introductory chapter, below.

Important determinants of Capacity Charge tariffs are Schedule 8 payment rates. At the time of publishing these Capacity Charge draft pricelists, Schedule 8 payment rates for CP5 have not been finalised. Nevertheless, we believe that it is appropriate to share pricelists based on indicative CP5 Schedule 8 payment rates now, so as to give stakeholders sufficient time to consider the issues prior to ORR's Final Determination, which is expected in October this year. We consider that the figures presented in this document are likely to constitute **'upper bounds'** for final Schedule 8 payment rates, and therefore Capacity Charge tariffs, in CP5. We expect that Schedule 8 payment rates will be finalised by August 2013, and we will make the associated Capacity Charge tariffs available shortly afterwards.

Next steps

These conclusions form our proposal to ORR in relation to the Capacity Charge in advance of its Draft Determination. The upcoming milestones for the Capacity Charge review are set out in the table, below.

Principal milestones	
April 2013	Network Rail publishes conclusions and draft pricelists
June 2013	ORR publishes Draft Determination
September 2013	Network Rail and industry publish responses to ORR's Draft Determination
October 2013	ORR publishes Final Determination
December 2013	Final pricelists made available
March 2014	Publication of delivery plan
April 2014	Implement new Capacity Charge

1. INTRODUCTION

1.1. Background

The Capacity Charge is paid by franchised passenger, open access and freight train operators. The main objective of the Capacity Charge is to allow Network Rail to recover additional Schedule 8[1] costs associated with the increased difficulty of recovering from incidents of lateness as the network becomes more crowded. In so doing, the charge helps neutralise the increased Schedule 8 risk to Network Rail of accommodating additional traffic. It does this on a 'liquidated sums' basis, thereby avoiding transactions costs that would otherwise be incurred by the industry. A secondary objective of the charge is to provide appropriate incentives and price signals to train operators and funders to make efficient use of capacity on the network.

The Capacity Charge was first introduced in June 2002, following the 2000 Access Charges Review. Subsequently, it has become both an important source of income for Network Rail and a significant cost to train operators. Network Rail's income from the Capacity Charge for franchised train operators in 2010-11 was £158m – this is more than the Variable Usage Charge and Electrification Asset Usage Charge combined (see Table 1, below). Franchised passenger operator payments currently account for 97% of total Capacity Charge income.

Table 1 – Network Rail access charge income from franchised passenger operators, 2010-11 (£m)	
Variable usage charge	137
Traction electricity charge	218
Capacity Charge	158
Electrification asset usage charge	8
Source: Network Rail Regulatory Accounts	

Unlike the Variable Usage Charge, the Capacity Charge does not vary by vehicle type, but by geographical area and time (in CP4, there is a 25% discount available for services which operate at the weekend). In 2010-11, the charge was, on average, around £0.54 per train-mile for passenger services, and around £0.14 per 1000 gross tonne miles (kgtm) for freight services.

1.2. The Capacity Charge and PR13

In its decision document *Periodic review 2013: setting the financial and incentive framework for Network Rail in CP5*[2], ORR confirmed that it continues to support the rationale for the Capacity Charge. ORR has asked Network Rail to revisit and recalibrate the charge for CP5, and has been supporting Network Rail with this work.

We consulted on the Capacity Charge for CP5 in July 2012. In particular, we asked for stakeholders' comments in relation to the following key areas:

[1] Schedule 8, of the track access agreements between Network Rail and train operators, sets out the arrangements for payment of compensation to relevant parties to reflect the impact of lateness and cancellations.
[2] ORR (May 2012), 'Periodic review 2013: setting the financial and incentive framework for Network Rail in CP5'. Available at: http://www.rail-reg.gov.uk/upload/pdf/financial-incentive-framework-cp5.pdf.

- the structure of the Capacity Charge (for example, the level of disaggregation for charging purposes and the weekend discount); and

- the methodology for recalibrating the Capacity Charge (for example, how capacity should be measured and how the relationship between capacity and congestion related reactionary delay should be estimated).

In order to ensure impartiality, the technical work on the recalibration of the Capacity Charge has been undertaken by independent consultants. A draft Invitation to Tender (ITT) for this work was shared with ORR, train operators, funders and other stakeholders in September 2012. We received a number of useful comments from this review.

Following a competitive tendering process, we commissioned a consortium made up of Arup and Imperial College London to undertake the technical work. The work commenced in the Autumn of 2012 and involved a number of stages including: a review of the existing methodology; data development; data analysis; analysis of the appropriate freight and weekend discounts; and tariff calculation.

Arup's interim report, which describes the process and methodology deployed to recalibrate the charge, has been published alongside this document.

1.3. Purpose of this document

The purpose of this document is to:

- conclude on the issues raised in our July 2012 consultation, and to address any points or concerns which were raised in the responses received; and

- share a set of draft pricelists with the industry, which follow from Arup's recalibration exercise.

Throughout the process, Network Rail's role has been to propose a set of tariffs based on the set of principles established by ORR. **We would emphasise, however, that any decision on Capacity Charge tariffs and policy for CP5 is ultimately a matter for ORR.** We expect ORR's decisions in relation to the Capacity Charge to form part of the broader review of charges for CP5.

1.4. Draft pricelists

Draft pricelists for the Capacity Charge are set out at the end of this document (Appendix 3). These are based on the technical work undertaken by Arup and Imperial College London. The industry has engaged constructively in this work and this engagement has helped inform Arup's calculations and conclusions.

We would emphasise that the pricelists are in **draft** form. The pricelists constitute Network Rail's early proposal to ORR on the basis of the technical work undertaken by Arup.

We would emphasise that any decision on Capacity Charge tariffs and policy for CP5 is ultimately a matter for ORR.

By means of this document, we have made our draft pricelists available to the industry at a significantly earlier stage in the current periodic review process

compared to previous price controls. We have done this to allow stakeholders sufficient time to challenge and comment on the proposals. **We would invite the industry to highlight any perceived issues or anomalies in the pricelists presented in this document.** Contact details are contained in the 'next steps' section, below.

Schedule 8 payment rates for CP5

Capacity Charge tariffs are set at Network Rail's marginal Schedule 8 liability as a result of accommodating incremental traffic on the network. As such, central determinants of Capacity Charge tariffs are Schedule 8 payment rates.

At the time of publishing this Capacity Charge draft pricelists, Schedule 8 payment rates for CP5 have not been finalised (more details are provided in the Appendix). Nevertheless, we believe that it is appropriate to share pricelists on the basis of the most recent indications of where payment rates could fall. We expect that Schedule 8 payment rates will be finalised by August 2013, and we will make the associated Capacity Charge tariffs available shortly afterwards.

1.5. ORR's charging principles

We have sought to progress the policy and recalibration of the Capacity Charge in line with ORR's track access charging objectives, as stated in the high level review of access charges letter of July 2010[3]:

1. to promote the objectives of our duties under section 4 of the Railways Act 1993 and be consistent with the wider objectives of funders;

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

3. to not unduly discriminate between users of the network;

4. to be practical, cost effective, comprehensible and objective in operation;

5. to be consistent with relevant legislation, including the EU Directive 2001/14/EC;

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

7. to ensure that track access charges enable Network Rail to recover but not to over recover, its allowed revenue requirement.

Where appropriate, our conclusions set out below refer back to these charging objectives to demonstrate the principles under which these have been developed.

[3] http://www.rail-reg.gov.uk/upload/pdf/charges_review_industry_letter_010710.pdf

1.6. Preliminary conclusions on the Capacity Charge

In order to allow the technical work to proceed, we concluded on a number of areas shortly after receiving responses to our July 2012 consultation. These conclusions were agreed with ORR and shared with industry stakeholders on 26 September 2012 and published on our website[4]. Early conclusions were made in areas which had typically gained significant industry support. Our conclusions were that:

- The Capacity Charge should not be disaggregated by time-period beyond the arrangements that are currently in place (with the exception of the weekends - see next bullet).

- The weekend discount should continue, if the evidence supports this. The level of the discount and whether it should vary across the weekend (e.g. be different on Saturday and Sunday) would be reviewed as part of the technical work undertaken by consultants.

- The Capacity Charge should be set at service code level rather than service group for passenger operators in CP5, which represents much more granularity than the arrangements currently in place.

- Freight operators should continue to pay a single Capacity Charge tariff.

- The freight discount would be reviewed as part of the technical work.

- The *de minimis* arrangements should remain similar to those currently in place, and cover situations where services have little impact on network performance. This would be reviewed by Arup.

- The Capacity Utilisation Index should remain the basis for the Capacity Charge, if possible.

1.7. Structure of this document

Each section of this document provides, for each issue, a brief overview of what was proposed in our July 2012 consultation, a summary of the responses received and our conclusions. A detailed summary of the consultation responses received for each question is included in Appendix 1. Where other relevant points were raised in response to the consultation, these have been summarised and we have provided a response to each of these points. A full description of responses in relation to these other issues is provided in Appendix 2. Appendix 3 contains the draft pricelists.

[4] Network Rail (September 2012), 'Preliminary Conclusions'. Accessible here: http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784472.

1.8. Next steps

These conclusions form our proposal to ORR in relation to the Capacity Charge in advance of its Draft Determination.

Should stakeholders have any comments on any of the issues raised in this document, they should contact Joel Strange at Network Rail (Joel.Strange@networkrail.co.uk) and Richard Owen at ORR (Richard.Owen@orr.gsi.gov.uk).

The milestones for the Capacity Charge review are set out in the table, below.

Principal milestones	
April 2013	Network Rail publishes conclusions and draft pricelists
June 2013	ORR publishes Draft Determination
September 2013	Network Rail and industry publish responses to ORR's Draft Determination
October 2013	ORR publishes Final Determinations
December 2013	Final pricelists made available
March 2014	Publication of delivery plan
April 2014	Implement new Capacity Charge

2. STRUCTURE OF THE CAPACITY CHARGE: CONCLUSIONS

2.1. Disaggregation across time

In our July 2012 consultation, we stated that we believe that further disaggregation of the Capacity Charge by time period, beyond what is currently in place, would introduce considerable additional complexity into the charging structure. We are keen to avoid introducing such complexity where the benefits do not outweigh the costs of the changes. We, therefore, proposed not to introduce Capacity Charge tariffs which vary across time in CP5, with the exception of the weekend discount which is currently in place.

Due to the fact that, on average, weekend traffic levels continue to be significantly lower than on weekdays, we proposed that the weekend discount should remain in place. However, we also proposed revisiting the magnitude of this discount to determine whether the current level remains appropriate.

Consultation question 1
Do you agree that, beyond the arrangements that are currently in place, Capacity Charge tariffs that vary across time should not be introduced?

Summary of responses

We received a mixed response to this question. Some respondents favoured further disaggregation that would send more appropriate price signals, but others argued that the administrative burden and additional complexity involved would make this difficult and costly to implement in CP5. In addition, it was noted that – given that provisions in franchise agreements typically specify timetables and calling patterns tightly and hold passenger operators neutral to changes in Network Rail's charges – the impact on incentives may be limited.

A full summary of responses is provided in Appendix 1 of this document, along with summaries of responses to other consultation questions.

Network Rail conclusion

We propose that disaggregation of Capacity Charge tariffs across time periods, beyond the current arrangements, should not be introduced for CP5 (with regards to the weekend discount, see consultation question 2, below).

This decision has been made after careful consideration of the views of stakeholders. We consider that it is important to strike the right balance between further disaggregation, as requested by some stakeholders, and simplicity and certainty in the charging structure, as advocated by others. We also need to be mindful of costs and risks of change.

This decision is based on an impetus to minimise complexity in the charging regime and retaining the ease of understanding for train operators and their customers. We consider that this decision is consistent with ORR's charging objectives to be practical, cost effective, comprehensible and objective in operation.

Furthermore, as the configuration of industry systems requires that charges are based on departure times, a move towards disaggregation by time band could result in a clustering of services around different priced time bands. We do not believe that this would be consistent with incentivising efficient use of network capacity.

As noted in our July 2012 consultation, a further issue arises in relation to contractual flex if further disaggregation by time was pursued. In particular, if trains were to be flexed into a time band in which a higher charge applied, the operator would incur additional cost. In the longer term, operators might seek tighter contractual rights to avoid their services being flexed into time bands where higher charges would apply. This could result in more protracted track access negotiations and would be detrimental to the efficient use of capacity across the network.

Finally, it should be noted that the Capacity Charge already (in both its CP4 and CP5 designs, see below) reflects service patterns across time to some extent, even though charges for specific services are not a function of the particular times of that service. To illustrate this, if a particular service code was made up primarily of peak services, the tariff for that service code would typically be higher, reflecting increased capacity utilisation during the peak.

Consultation question 2
Do you agree that the weekend discount should remain in place? Do you agree that the magnitude of the discount should be revisited, and informed by analysis undertaken as part of the Capacity Charge recalibration exercise?

Summary of responses

Consultation responses, in large part, supported the continuation of the weekend discount, with a number of respondents suggesting that the level of discount could vary between Saturday and Sunday to reflect the difference in capacity usage. All consultation responses in relation to the weekend discount agreed that the magnitude of the discount should be revisited for CP5.

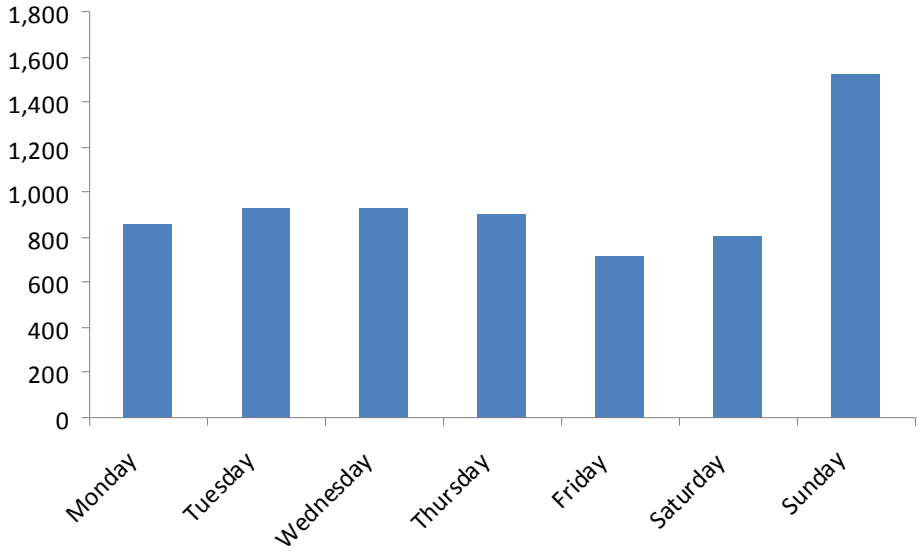
Network Rail conclusion

We propose that the weekend discount should remain in CP5. We have concluded that the discount calculated by Arup should be rounded to 33%, and the discount should be the same for both Saturdays and Sundays.

Arup's calculations suggest that Network Rail's marginal Schedule 8 costs are some 31% lower on weekends. We propose that the discount should be rounded upwards to 33%. We note that this weekend discount is significantly larger than the one offered previously.

As part of this review, we have asked Arup to investigate whether or not it is appropriate to implement different rates on Saturday and Sunday and, if so, to recommend new rates. This is in response to stakeholders' questions about the level of traffic varying between these two days. In our July 2012 consultation, we recognised that whilst Sundays are typically less congested in terms to passenger and freight traffic than Saturdays, they are particularly important days for possessions (see figure 1, below). We emphasised that incentivising higher traffic levels on Sundays could frustrate possessions planning. We have, therefore, asked Arup to take account of this issue in making its recommendation regarding weekend discounts.

Figure 1 - Average number of possessions affecting each day, 2012



Arup's recommendation is that the weekend discount should remain constant over the weekend in CP5. We fully support this conclusion. Introducing a discount which varies over the course of the weekend could have significant impacts on the pattern of demand. This could aggravate Network Rail's ability to plan and take possessions, and lead to reduced efficiency in delivering works on the network. We would not propose differentiated discounts across the weekend without robust evidence of the likely demand impacts.

DB Schenker also suggested that the recalibration work should take into account the effect of Network Rail's possessions, as it is a significant user of capacity itself. We understand this consideration. Whilst we do not believe that it would be appropriate for Network Rail to 'pay itself' for use of capacity since doing so would give rise to unnecessary transactions costs, we note that the regulatory framework places strong incentives on Network Rail to manage capacity effectively, for example through the Schedule 4 and 8 regimes. Schedule 8 encourages Network Rail to manage capacity such that unplanned disruption is accommodated efficiently. Similarly, Schedule 4 incentivises Network Rail to use capacity for purposes of engineering access in an efficient and effective way. Moreover, the Volume Incentive encourages us to increase capacity on the network so that it can accommodate additional traffic.

2.2. Disaggregation across geography

Our summer consultation included a proposal to move from charging the Capacity Charge at service group to service code level. This would see an increase in the geographical granularity from approximately 100 to 400 units for charging purposes. Disaggregation to this level would not require substantial redesign of Network Rail's billing system, while providing sharper price signals and increased flexibility.

Consultation question 3
Do you agree that the Capacity Charge should be disaggregated to train service code (rather than train service group) level in CP5?

Summary of responses

The proposal to disaggregate the Capacity Charge to train service code level was met with wide-spread agreement from respondents. However, some respondents suggested that, in so doing, it may create large variations between charges, which they considered undesirable. Some respondents also argued that it could be disaggregated further to reflect route sections, which could provide even sharper price signals than charging at service code or group level.

Network Rail conclusion

We propose that the Capacity Charge in CP5 will be set on the basis of service codes rather than service groups.

This would represent a step-change in the level of geographic granularity on which the charge will be based, increasing the number of units from approximately 100 to 400. This will allow for considerably more granularity and flexibility than is currently available.

We do not propose moving to a more granular structure than service code level in CP5 (for example by charging on a geographic basis). In our July 2012 consultation we stressed that further geographic disaggregation beyond service code level would require an overhaul of Network Rail's billing system. We would emphasise the scale of the changes that would be required to charge on a truly geographic basis. Doing so would require a marked change not only to the way trains are billed, but also to the way that trains are tracked across the network. Not only would the costs associated with such a move be substantial, the project risks would be large, especially at the current stage in the periodic review. We note that attempts to set Capacity Charges on a geographic basis were made several years ago, and that these efforts incurred significant costs and were ultimately unsuccessful. We believe that moving to service code is a practical and flexible solution for CP5, and is in line with ORR's charging objectives to be cost effective, whilst continuing to provide incentives for efficient network utilisation.

We consider that further consideration should be given to whether charging on the basis of geography could be appropriate for CP6. We believe that consideration of this issue should take place early on in CP5 as part of the accelerated charges review for CP6, sponsored by RDG.

PTEG raised an issue in relation to long distance services. It stated that using a uniform tariff for each service code does not provide incentives to avoid problem areas, such as congested bottlenecks. We recognise this issue. However, for the reasons described above, we do not consider that it would be appropriate to seek to solve this problem by means of geographic charging in CP5. We note though, that a movement to service code charging does permit increased flexibility to address this.

In response to the First Capital Connect/First Group comment that changes to the charge should not be made unless there are fully quantified costs and benefits, it should be noted that disaggregation to service code level can be achieved with minimal cost because, as stated above, no changes would be required to Network Rail's billing systems. The change to service code will help realise the considerable

benefits identified in stakeholders' consultation responses, particularly by providing sharper incentives and greater flexibility.

2.3. Constructing new tariffs in CP5

In our July 2012 consultation we recognised the difficulties associated with charging by service code. For example, operators may occasionally make changes to service codes and reallocate trains between them. This could result in financial effects to both Network Rail and operators as different service codes would be likely to attract different levels of Capacity Charges. To address this, we proposed the development of a tool to generate appropriate Capacity Charge tariffs for new or amended service codes, which would form part of the consultants' recalibration work.

We have suggested that one way to accommodate these new tariffs contractually would be through supplementary track access agreements which could be incorporated into Schedule 7.

Consultation question 4
What are your views on developing a tool to calculate Capacity Charge tariffs for new or amended service codes? How could this be best accommodated contractually?

Summary of responses

All responses were supportive of the proposal to develop a tool to calculate Capacity Charge tariffs for new or amended service codes. Responses also included suggestions regarding the design of the tool and factors which should be taken into account.

Network Rail conclusion

We have requested that the consultants provide such a tool. The development of this tool is a central output of Arup's work.

This will allow Network Rail and ORR to provide Capacity Charge tariffs that reflect the estimated impact on Schedule 8 costs if train operators propose changes to service codes. An additional benefit of this tool is that train operators could work with Network Rail to secure more cost-reflective charges through the introduction of new service codes.

The tool will also have the functionality to accommodate tariffs for 'new' parts of the network (although a separate calibration will need to take place for any new parts of the network), allowing Network Rail to recover costs for parts of the network which are not yet operational and are, therefore, not included in the current recalibration work.

Centro and PTEG noted that, in the development of the tool, careful consideration should be given to the implications of additional train services on capacity utilisation, which would therefore require recalibration of rates for all services on that route. We do not believe that it would be appropriate or practicable for the tool to seek to systematically capture changes in capacity utilisation within CP5, except in the case of genuinely new infrastructure connecting locations previously not linked (see below). This would add considerable uncertainty for all industry parties. The recalibration exercise currently being undertaken will take a 'snapshot' of the current network and timetables. We consider that undertaking a recalibration of the charge

for every change in circumstance would not be an appropriate use of industry resources. We consider this point further in section 2.6.

PTEG also stated that the tool should reflect detailed operational constraints. Centro stressed the need for it to be reactive to circumstances and flexible. We have sought to accommodate detailed operational constraints, whilst being careful to contain project costs. These are discussed in detail in the next chapter and Arup's draft report.

We note First Capital Connect/First Group's agreement to incorporate supplemental agreements into Schedule 7 for new tariffs determined by the tool. We will consider the mechanism further during the implementation stage of PR13, which will commence shortly.

2.4. Arrangements for freight

Consultation question 5
Do you agree that all freight operators should pay the same single Capacity Charge tariff in CP5? What are your views on the level of the discount applied to freight services?

Level of disaggregation for freight

Our consultation proposed maintaining a single Capacity Charge rate for freight operators. This was in order to provide freight operators with consistency and certainty, and ensure that they are not required to pay different rates as a result of Network Rail pathing decisions.

Summary of responses

The proposal to charge freight operators the same single Capacity Charge tariff in CP5 was met with agreement from freight operators. However, other stakeholders were against this charging structure, arguing that it does not incentivise freight operators to use capacity efficiently.

Network Rail conclusion

We propose continuing to charge a single Capacity Charge tariff for freight operators in CP5.

We understand the concerns raised by some stakeholders that maintaining the single tariff does not provide incentives for freight operators to make the most efficient use of network capacity. However, we consider that maintaining the *status quo* in relation to offering a single tariff to freight operators is appropriate for a variety of reasons:

i. it avoids undue discrimination;

ii. it is practicable as it does not require a major redesign of the way trains are charged; and

iii. it is simple and provides operators and Network Rail with a degree of certainty, and as such helps the industry appropriately manage risk.

We consider this proposal to be consistent with ORR's charging objectives, specifically for charges to not unduly discriminate between users of the network, and be practical and understandable.

The freight discount

Network Rail has a considerable amount of flexibility in the way it accommodates and routes freight traffic. This includes flexibility both in terms of designing the working timetable, and also making 'on the day' adjustments. This allows Network Rail to path freight traffic so as to avoid capacity bottlenecks and busy areas, which is important for the efficient use of capacity on the network.

This flexibility forms the basis of the justification for the discount provided to freight operators on the Capacity Charge. Currently, this discount is set at 10% of the Capacity Charge (accounting for a reduction in charges paid by freight operators of circa £0.4m per annum). We stated in our consultation that we consider this level of discount is broadly appropriate, but would ask the successful consultants to revisit the level of the discount.

Summary of responses

In response to this issue, many freight operators stated that they would like to see the level of the discount reviewed, and noted that they believed that the discount should be higher to reflect Network Rail's flexibility in accommodating freight traffic.

Network Rail conclusion

As part of the recalibration exercise, we have asked Arup to review the freight discount and recommend an appropriate level for CP5. Arup has recommended a discount of 21%. Given the uncertainty around this figure, we propose that the freight discount should be rounded upwards to 25%.

Some operators, such as GB Railfreight and Freightliner, suggested that the freight discount should be set so as to recognise the fact that freight operators tend to operate on less busy parts of the network and at less busy times. However, it should be noted that the fact that many freight trains run overnight, use off-peak capacity and less congested parts of the network is already taken into account in setting the level of the Capacity Charge for freight operators. The calibration reflects freight trains that have actually run, and so captures the timing and location of these, and the impact they that have on capacity. This is illustrated by the fact that freight operators currently pay approximately £4m of the £160m total annual income from the Capacity Charge, or approximately 3% of Capacity Charge revenue. On the other hand, freight accounts for a much higher proportion of overall traffic, with some 8% total of train miles.

TfL suggested that the Capacity Charge should be levied not on freight trains that run, as is currently the case, but on booked 'slots'. We understand TfL's comment. However, we believe that charging on the basis of booked 'slots' is out of line with the purpose of the Capacity Charge, as booked slots that are not used do not impact negatively on reactionary delay. We note that ORR considered the issue of 'reservation' charges early in PR13, and decided not to progress it in CP5.

2.5. *De minimis* threshold

Our consultation proposed that the current *de minimis* arrangements continue into CP5, provided that there was evidence to support this. Under the current arrangements, where the Capacity Charge tariff for a Constant Traffic Section (CTS) is below a threshold, the Charge for that section is set at zero.

We have asked Arup to review the *de minimis* arrangements and recommend an appropriate setup going forward.

Consultation question 6
Do you agree with Network Rail's proposals in relation to the *de minimis* threshold?

Summary of responses

All respondents agreed with our proposal that arrangements similar to the current ones should continue in CP5.

Network Rail conclusion

We have asked Arup to review the level, and need for, the *de minimis* threshold in CP5. It has concluded that the *de minimis* threshold is no longer required, as its calculation would, in fact, increase transactions costs. We support this conclusion.

The basis for Arup's recommendation is set out in detail in its report which accompanies this document. The *de minimis* threshold was originally set to reflect the nature of the observed relationship between capacity utilisation and congestion related reactionary delay. The exponential function provided the best statistical fit to the data over the ranges of capacity utilisation which usually occurred. However, at very low levels of traffic, or even sections with no traffic, there could be some level of congestion related reactionary delay which gave rise to problems of statistical fit. The *de minimis* threshold was introduced to prevent this by setting the charge to zero where the traffic levels were low. Another objective of the threshold was to reduce administration costs associated with implementing the charge, which were non-trivial at the time of setting the charge originally.

However, as traffic has significantly increased since 2000, this problem has not occurred during the current recalibration. Also, we have not yet found a further compelling rationale for the *de minimis* threshold. The work undertaken by Arup suggests that the *de minimis* threshold no longer has a purpose and would most likely increase administration costs associated with the charge if it were to be retained. Moreover, the recalibration exercise has demonstrated that, even at low levels of CUI, the marginal impact of increased traffic on the network is significant.

DB Schenker noted that it does not consider that the *de minimis* threshold applies to freight. We would emphasis that the *de minimis* arrangements have historically been applied at the CTS level, rather than to services. This means that freight operators have benefitted from the *de minimis* arrangements by means of a lower overall charge, rather than certain services receiving a zero tariff.

DB Schenker also asked for greater detail on the underlying analysis of the *de minimis* arrangements. The current Capacity Charge was calibrated almost fifteen

years ago, and it has not been possible to locate this information. As noted above, Arup's recommendation around the *de minimis* arrangements are set out in its report.

2.6. Arrangements for handling large timetable changes and enhancements in CP5

In CP5 it is likely that there will be substantial timetable changes due to a number of large projects and enhancements such as Thameslink, Crossrail, new electrification and the refranchising of passenger services. Our July 2012 consultation recognised that these could affect the underpinnings of the Capacity Charge in CP5.

Consultation question 7
What are your views in relation to arrangements for handling large timetable changes in CP5?

Summary of responses

Freight operators were against mid-control period changes to the Capacity Charge as a result of large timetable changes, as they considered that this would result in a lack of confidence for freight operators and their customers in the CP5 charging regime. Other parties, however, considered that there should be a mechanism in place to take account of any such changes.

Network Rail conclusion

We propose that underlying Capacity Charges (at CTS section, rather than service code level) should remain fixed in CP5.

The only exception to this should be when new sections of infrastructure, which do not currently possess a Capacity Charge tariff under the Arup recalibration, are constructed or otherwise incorporated into the Network Rail network. We believe that this is appropriate as it provides financial certainty – a factor which has been identified as a priority for a large number of respondents to our consultation – to funders, operators and Network Rail.

Some respondents suggested that any large timetable changes should be taken account of, either by means of the current recalibration exercise or subsequently via changes to the Capacity Charge in CP5. We do not consider that this would be appropriate for a number of reasons. Firstly, it is not possible to take account of changes without detailed information about capacity utilisation and congestion related reactionary delay patterns, so that it is not viable to take account of changes until some experience of the timetable has been gathered. Secondly, and as noted above, this could introduce considerable uncertainty. For example, each time such a change was made, the freight tariff would need to be reset. This is because the freight tariff is set on the basis of a blended average of localised tariffs, reflecting the timings and locations of freight services. Thirdly, the administrative costs of resetting Capacity Charges within control periods could be considerable, and are unlikely to be justifiable except in relation to the largest schemes where genuinely new infrastructure is introduced. Finally, the scale of changes required before adjustments are made would be arbitrary, and could be out of kilter with ORR's principle of objectivity in charging.

We note that our conclusion is in line with precedent from previous control periods. In addition, it is consistent with the approach taken to date that the Capacity Charge

does not take account of ‘continuous’ changes that may take place during the control period. For example, traffic is likely to grow throughout CP5 and this growth could have a very significant impact on capacity utilisation. If modifications to the Capacity Charge were to be made on the basis of ‘discreet’ changes in timetables, it would follow that they should also take place for ‘continuous’ changes such as traffic growth. Overall, we believe that the administrative costs and increased risk that this would imply could be substantial.

We have asked Arup to design the tool to update charges for new or changing service codes, which has the functionality to incorporate a Capacity Charge for new route sections (although a separate recalibration will need to take place to establish tariffs for any ‘new’ parts of the network).

It should also be noted that most of the larger enhancements, notably Crossrail, Thameslink and electrification, will not be completed until the end of CP5 at the earliest. As such, we believe that it will be appropriate to consider accounting for these as part of the recalibration for CP6.

Finally, we would emphasise, given the dynamism of capacity utilisation, the importance of undertaking a recalibration of the Capacity Charge as part of each periodic review. Whilst this has not been done historically, moving forward it is important that such an exercise takes place as a matter of course in order to ensure that the charge mirrors the most up to date position on the ground and to avoid price ‘spikes’ from accumulated changes in network utilisation if the charge is re-calibrated less frequently.

3. RECALIBRATION OF THE CAPACITY CHARGE: CONCLUSIONS

3.1. Proposed methodology

Our July 2012 consultation proposed a broadly similar methodology for calibrating the Capacity Charge for CP5 to that applied for previous control periods. This was on the basis that, whilst complex, it has worked reasonably well in the past. We asked for views on whether the proposed methodology, as set out in the consultation document, was appropriate, and how and whether it could be improved.

Consultation question 8
Do you consider that the proposed methodology for recalibration of the Capacity Charge is appropriate?

Summary of responses

Overall, the consultation responses supported the use of the proposed methodology.

Network Rail conclusion

On balance, and as stated in the preliminary conclusions, we have concluded that retaining the current methodology is appropriate.

We appreciate the continued engagement of stakeholders on the development of this charge, recognising that industry participation in the recalibration process is essential to the understanding of the charge.

We note that some respondents did not consider themselves to have enough knowledge on this matter to make an informed decision. In light of this, we have provided the industry with a variety of means of becoming more involved with the technical work and gain a better understanding of the methodology. Activities have included:

- establishing the Capacity Charge working group – a monthly meeting for interested stakeholders to discuss and inform the technical work and policy issues (see chapter 5);
- requesting our consultants, Arup, to present their methodology and initial findings to the VTAC Developments Meeting and the Capacity Charge working group;
- providing a detailed description of the methodology in the consultation document and inviting stakeholders' views on this;
- sharing the Invitation to Tender for the technical work with the industry and inviting comment before issuing it to prospective bidders; and
- presenting the methodology at various VTAC developments meetings.

We now turn to some of the specific comments made by respondents in relation to the methodology.

Some respondents raised the issue of possible over recovery of costs. We have considered the concerns raised by stakeholders in relation to this issue, and these are addressed in section 6.3.

Some respondents suggested that the impact of operational efficiencies on congestion should be taken into account, for example, in the case where introducing new services may arguably result in a more efficient use of capacity. In relation to this, it is important to note that the Capacity Charge is a 'liquidated sums' regime and, as such, the technical work seeks to identify general relationships between capacity utilisation and reactionary delay. We consider that reflecting every local nuance in the Capacity Charge recalibration process would be extremely difficult and introduce significant complexity and cost. This would be in conflict with the purpose of the Capacity Charge, to avoid large transaction costs associated with negotiating the addition of every new service to the network. Furthermore, we have not yet received evidence to suggest that an increase in timetabled train miles results in operational efficiencies. Should such evidence become available, we would of course consider this. We note that, should operational efficiencies occur systematically once new trains are added to the network, this will be picked up through the recent recalibration process.

We recognise the point made by Centro in that the calculations include a factor so that only delays caused by Network Rail are included in the calibration of the charge. However, if we changed the approach so that all reactionary delay was accounted for, it would result in a large increase in Capacity Charge tariffs. Since much of this additional reactionary delay is beyond Network Rail's control, we do not consider that this would be appropriate. We note that no alternative or solution to this issue has been proposed.

3.2. Metrics for measuring capacity

In July 2012, we proposed using the Capacity Utilisation Index (CUI) as the basis for the Capacity Charge recalibration as part of PR13. This was the measure used in previous calibrations.

Consultation question 9
Do you agree that the CUI should be used as the basis for Capacity Charge recalibration as part of PR13?

Summary of responses

The majority of respondents agreed with the use of the CUI as the basis for the Capacity Charge recalibration for PR13. However, it should be recognised that this was generally due to a lack of alternative options.

Network Rail conclusion

The Capacity Utilisation Index has been used as the basis for the recalibration of the Capacity Charge for CP5.

Whilst Arup was invited to consider alternative options, its inception report recognised the CUI as the UK industry standard measure for capacity usage. Furthermore, Arup noted that the CUI maps naturally onto its proposed geographic hierarchy and to route sections for which planning headways are specified in Network Rail's Timetable Planning Rules.

We note that no viable alternatives to the CUI were proposed in response to our Invitation to Tender for recalibration of the Capacity Charge. We consider that, although not being pursued for the recalibration of the Capacity Charge for PR13, alternatives to the CUI should be investigated during CP5 to potentially inform CP6 charging.

TfL and Freightliner recommended that the CUI take into account any enhancements or timetable improvements which increase capacity while reducing performance risk. As stated in section 2.3, the recalibration exercise takes a 'snapshot' of the network on the basis of current working timetables, and therefore these enhancements will be included if they are in the timetable at the time of the 'snapshot'. We do not believe that it is appropriate or cost efficient to seek to predict the impact of schemes that have yet to materialise. In addition, it would not be possible to derive a relationship between congestion related reactionary delay and CUI for these parts of the network, since no historic data would exist for sometime after the enhancement has been in place.

Alliance Rail Holdings suggested using metrics other than the CUI to reflect constraints at junctions and stations e.g. dwell times. We note that there are no standard capacity utilisation metrics which apply to junctions or stations, such as the CUI which is recognised as the UK industry standard measure. Therefore, we believe that it is pragmatic to use link-based CUI calculations for the Capacity Charge recalibration analysis. In addition, junctions and stations are inherently variable in their layout and numbers of conflict locations and platforms. Any attempt to account for this operationally would require detailed consideration of junctions and stations, and would typically require an individual, detailed analysis of each location, and often a bespoke modelling exercise. Rather than dealing with this by means of a highly detailed and costly operational analysis for each and every junction and station, Arup and Imperial College have allowed for this using the statistical approach of 'Fixed Effects' estimation. This method allows the researcher to statistically capture the specific features of track sections and account for CTS sections that are systematically subject to more congestion related reactionary delay than others. The method is described in more detail in Arup's draft report, and in the next section.

Alliance Rail Holdings also stated that technical headways[5] should be used rather than planning headways[6]. Similarly, it stated that modelling should reflect the technical limits of the signalling system, rather than the planning rules. Planning headways have historically been used due to the benefit of simplicity. Technical headways require detailed analysis using RailSys or similar software, and so would be more complicated, costly and time consuming to calculate. In addition, typically, the planning headway for a given route section will be a fairly constant multiple of the technical headway, so there should be little fundamental difference between the relationship obtained from the two approaches. Therefore, we believe that the use of technical headways does not justify the additional complexity. We note that this is the same approach as was used during the initial calibration of the charge, and believe that there is merit in maintaining a consistent methodology over time.

[5] Technical headway refers to the physical headway between trains allowed by the signalling. This is generally measured on non-restrictive aspects (green signal running) and is measured to the nearest second.

[6] Planning headway refers to the headway as specified in the Timetable Planning Rules and is the industry agreed minimum margin to plan the timetable to use. Changes to the Timetable Planning Rules are required to be consulted on with industry. This value is measured to the nearest 30 seconds.

We note John Haith's useful comments from his PhD thesis. Whilst we have not adopted this approach in the current Capacity Charge recalibration, we consider that there could be merit in considering this further in any future recalibration of the charge.

In response to Freightliner's query regarding the calculation of CUI, we can confirm that Arup has calculated CUI for every Constant Traffic Section and every time period (see Arup's report for further details).

3.3. Accounting for other determinants of reactionary delay

Our consultation proposed that we would invite consultants bidding for the recalibration work to suggest an appropriate methodology and data sources to account for other determinants of reactionary delay. By not including these in previous recalibration exercises, there has been a large amount of statistical 'noise' in the regression analyses and the risk of biases in the estimation of the relationship between capacity utilisation and congestion related reactionary delay. We recognised the need to be pragmatic when developing a statistical methodology to take account of other determinants of reactionary delay.

Consultation question 10
What are your views about accounting for other determinants of reactionary delay as part of the CP5 recalibration of the Capacity Charge?

Summary of responses

All responses recognised the need to account for other determinants of reactionary delay in the recalibration process, and accepted our proposal to invite consultants to suggest an appropriate methodology and data sources to account for this in their calculations.

Network Rail conclusion

We believe that it is important to seek to account for other determinants of reactionary delay.

This is principally to ensure that train operators and Network Rail are protected from any biases that could otherwise be introduced into the charge if these were not taken into account. In addition, doing so could help increase the precision of the empirical work.

A particular issue relates to taking account of local nuances which affect capacity and reactionary delay, such as the presence of stations or network complexity around junctions. This could introduce 'endogeneity' bias. We have asked Arup and Imperial College, as part of their technical work, to investigate this issue. Whilst it has not been possible to take account of detailed features of every track section – more than 6,000 in total – by operational means, Arup and Imperial College have deployed econometric techniques that allow for the isolation of specific local features that affect reactionary delay. This is called 'Fixed Effects' estimation. Essentially, the method recognises that a given section of infrastructure may have particular characteristics – such as a complex junction – that may cause reactionary delay to be particularly acute. It also recognises that the presence of these characteristics is constant across different timebands. Using this information, the methodology is able to isolate any

'systematic' local features that mean that reactionary delay may be particularly significant. Arup's draft report provides more detail on this.

We have considered the comments from Rail Freight Group in relation to this question, which stated that Network Rail is not incentivised to reduce reactionary delay since it is compensated for such increases through the Capacity Charge. We do not agree with this statement. Schedule 8 continues to provide a marginal incentive for Network Rail to manage reactionary delay. In addition, we believe that the principal purpose of taking account of other determinants of reactionary is to protect operators and Network Rail from biases that could otherwise enter the calibration exercise.

3.4. Functional form

Our July 2012 consultation suggested that the relationship between reactionary delay and capacity utilisation is expected to be increasing, with the slope becoming steeper as capacity utilisation increases. We stated that it would be necessary to select a specific mathematical form to underpin the Capacity Charge and that this choice should be based on statistical testing and careful judgement.

Consultation question 11
What are your views about the functional form used to model the relationship between reactionary delay and capacity utilisation?

Summary of responses

Responses received to this question were mixed. Please see Appendix 1 for more details.

Network Rail conclusion

The final functional form proposed is the exponential function.

We asked our consultants to choose an appropriate functional form on the basis of careful and rigorous statistical testing. As detailed in Arup's report, this testing was preceded by a 'nonparametric' analysis which sought to identify the general 'shape' of the relationship. The final choice of 'parametric' functional form was decided on the basis of statistical criteria including T-tests, F-tests, the R-Square, the Bayes Information Criterion and Akaike Information Criterion. The final functional form adopted was the exponential function.

The exponential function is the same functional form that provided the basis for the original calibration, and continues to underpin the Capacity Charge in CP4. We believe that this consistency across control periods provides confidence that the function that has been adopted is the most appropriate one. We note that analysis from John Haith (PhD student) suggested that, out of all functional forms tested, an exponential form is likely to give the best result for the relationship between congestion related reactionary delay and CUI. Moreover, we note that many theoretical models of congestion support this choice.

3.5. Analytical risk

As our July 2012 consultation stated, when estimating the relationship between reactionary delay and capacity utilisation, there was a possibility that the technical work would not identify the relationship with the required degree of confidence, due to methodological or data limitations. Had this occurred, Network Rail proposed a number of options. We sought views on how the industry could guard against analytical risk in the Capacity Charge recalibration, and on how we should proceed to secure a fit for purpose Capacity Charge in CP5 should the statistical recalibration exercise not be fully successful.

Consultation question 12
How do you think the industry can guard against analytical risk in the Capacity Charge recalibration? In the unlikely event that statistical recalibration approach described above is not fully successful, how should we proceed to secure a Capacity Charge which is fit for purpose in CP5?

Summary of responses

Several of the responses considered that the working group would be the appropriate forum in which to discuss the issue of analytical risk in the Capacity Charge recalibration.

Network Rail conclusion

We are pleased that the recalibration exercise has successfully isolated the relationship between CUI and congestion related reactionary delay.

As part of the bidding process for the recalibration work, consultants were asked to maximise the likelihood of the 'core' methodology being successful and to recommend Capacity Charge tariffs through an alternative approach in the case of an unsuccessful recalibration. In its inception report, Arup explained what measures it was taking in the recalibration to maximise the chance of success with the core workstream. Arup noted that, in the event that the recalibration failed to establish robust relationships, its decision to abandon the core workstream would be a quantitative one based on regression confidence levels and statistical checks. Arup also prepared a 'backup' workstream at Network Rail's request.

4. CHANGES IN THE CAPACITY CHARGE IN CP5

Our July 2012 consultation noted that the Capacity Charge has not been systematically updated since its inception following the Access Charges Review 2000. For this reason, we stated that it was likely that individual Capacity Charge tariffs, together with the average tariff, will change in CP5 as the recalibration seeks to reflect the most up-to-date information on the ground. As a result of increases in passenger revenue and changes in capacity utilisation, we indicated that Capacity Charges would likely increase in CP5.

4.1. Changes in the Capacity Charge between CP4 and CP5

Our consultation stated that, as part of the recalibration exercise, the consultants would be asked to propose a methodology for explaining, at a high level, the differences between charges from CP4 to CP5. We also consulted on how changes in the Capacity Charge between CP4 and CP5 should be managed.

Consultation question 13
How should changes in the Capacity Charge between CP4 and CP5 be managed?

Summary of responses

Many of the respondents considered that communication and early publication of the revised charges (prior to the start of CP5) would be the best approach. This would keep the industry informed of any proposed changes, and allow it to understand and plan for changes prior to their introduction.

Network Rail conclusion

During PR13, Network Rail has responsibility for developing Capacity Charge proposals and pricelists in line with ORR's charging objectives and guidance. We have sought to publish pricelists early to allow review of work and provide ample notice of changes.

Our July 2012 consultation set out our intentions in relation to industry engagement on the Capacity Charge in PR13. We stated that we would ask the consultants to present their methodology to the industry group in early 2013 ahead of publication of the draft price lists in April 2013. By providing pricelists in April 2013, we have provided a full year prior to implementation of likely changes to charges.

We note comments regarding the gradual introduction of any significant increases over the course of CP5. We consider that this is a decision for ORR, but believe that it is important that Network Rail is fully funded for the entirety of the control period.

As stated above, we realise the importance of providing our customers with sufficient notice of any changes to the charge, and we have asked the consultants to provide an explanation of the differences between CP4 and CP5.

5. INDUSTRY ENGAGEMENT: CONCLUSIONS

Our July 2012 consultation noted that the cost of congestion-related reactionary delay is a complex issue and that the financial values involved are significant. Recognising the commercial implications that access charges have for our customers, we reiterated our commitment to working with train operators in striving for the successful translation of technical work into a charging structure that is fully transparent, practicable to administer and reflects reality on the ground.

5.1. Approach to industry engagement in PR13

The steps that we had already taken to engage with stakeholders in relation to the Capacity Charge, alongside those that we proposed to take going forward, were outlined in our July 2012 consultation. We sought views on the creation of a Capacity Charge working group (including its membership and remit) and also consulted on further views or suggestions regarding our overall approach to industry engagement.

Consultation question 14
Do you support the creation of a Capacity Charge working group? How do you consider that its membership should be decided? What should be its remit?

Summary of responses

Most responses were in support of the creation of a working group, and considered that it should comprise:

- Owning groups;
- Franchised passenger train operators;
- Freight operators;
- Open access operators;
- Funders;
- PTEs;
- Network Rail;
- Network Rail's consultants; and
- ORR.

Several respondents, however, did not agree that a working group was necessary.

Network Rail conclusion

We have established a Capacity Charge working group and the first meeting was held in November 2012.

We note the comments made in relation to the formation of a Capacity Charge working group. We have been encouraged by the level of support for this approach.

We believe that there is significant merit in furthering industry understanding of the recalibration process and discussing policy issues with the industry on an ongoing basis. We consider that a Capacity Charge working group is the most appropriate forum in which to achieve this. Moreover, we are aware that the process during the last periodic review could have been more transparent and inclusive, and we are seeking to improve this as part of PR13.

The group has sought to bring together colleagues from across the rail industry and other interested stakeholders. The main objective of the group is to act as a forum to discuss and inform:

- the technical work surrounding the Capacity Charge recalibration; and
- policy issues relating to the Capacity Charge.

An objective of the group is also to ensure transparency in relation to Capacity Charge policy and technical work. The group is not accountable for delivery of the Capacity Charge recalibration or other workstreams. At the first meeting of the group, it was decided that the group would continue to meet after publication of pricelists to discuss policy issues moving forward into CP6.

Consultation question 15
Do you have any further views or suggestions about our approach to stakeholder engagement in relation to the Capacity Charge?

Summary of responses

Some stakeholders raised concerns about the timing of consultations and the excessive workload that this imposed. Stakeholders also asked that information is shared well in advance.

Network Rail conclusion

As part of the resetting of the Capacity Charge for CP5, we have worked hard to ensure that stakeholders' questions and concerns are appropriately addressed and that they have opportunities to influence the process.

We have also sought to promote transparency and understanding of both the purpose of the charge, and also the approach used to derive tariffs. Activities relating to the Capacity Charge have included:

- establishing the Capacity Charge working group – a monthly meeting for interested stakeholders to discuss and inform the technical work and policy issues;
- requesting our consultants, Arup, to present their methodology and initial findings to the VTAC developments meeting and the Capacity Charge working group;
- providing a detailed description of the methodology in the consultation document and inviting stakeholders' views on this; and
- sharing the Invitation to Tender for the technical work with the industry and inviting comment before issuing to prospective bidders.

We understand the point raised by some stakeholders that the timing of multiple consultations can lead to a very heavy workload for stakeholders. We have sought to release information in a timely manner and coordinate the deadlines for consultation responses. However, overall timings of the periodic review process and the scale of work that needs to be completed inevitably means that it will not always be possible to provide the amount of time for consultation as would be ideal. We note that an exercise is being planned to review the charging structure in the railway industry and that this will be an RDG sponsored initiative. We expect that this process will commence early in CP5. As such, we anticipate that the workload for the next price control will be spread over a longer period of time.

We recognise DB Schenker's request that information is shared with the Capacity Charge working group in advance of meetings. Since its inception in 2012, we have sought to provide an agenda and papers to the group approximately one week in advance of meetings. It has usually been possible to achieve this. In a small number of cases, it has not been possible to provide information in advance. This has been the case especially in relation to technical work, since the pace of progress has typically been rapid so that we have sought to share the most up-to-date view of progress.

In response to Freightliner's request to share data in relation to the calibration, we would be happy to consider any specific data requests.

Consultation question 16
Do you prefer fewer and longer consultations or more regular and shorter consultation?

Summary of responses

Overall, respondents' preference was for more regular and shorter consultations, although opinions were mixed. TfL and AECOM required sufficient notice of consultations, in order to respond. AECOM also suggested that consultation topics should be more focused.

Network Rail conclusion

We note the points raised by stakeholders and, where appropriate, have sought to design our consultation processes accordingly.

Some stakeholders questioned whether the length of our consultations is suitable. We believe that there is balance to be struck between the inclusion of sufficient detail and evidence to enable stakeholders to respond effectively, and ensuring that documents are reasonably concise and digestible. We attach particular importance to openness in the charge setting process and ensuring that stakeholders are furnished with the information they need to make informed judgements about the work. Overall, whilst we consider that our PR13 consultations have provided the appropriate level of detail, we will take this on board for any activity in the early review of charges for CP6.

Consultation question 17
Do you have any further views or suggestions about our approach to stakeholder engagement in general?

Summary of responses

A small number of respondents commented in relation to Network Rail's general approach to industry engagement. These comments were varied, and are outlined in Appendix 1 of this document.

Network Rail conclusion

We recognise the point raised by TfL in relation to the ease of accessing consultation material on our website. In response to this and other requests, we have redesigned our PR13 charges and incentives webpage[7]. There is now a 'live consultations' section, where stakeholders can easily access Network Rail consultations and conclusions. The webpage has been streamlined and rationalised, with separate pages dedicated to Network Rail's own consultations and Network Rail's responses to ORR publications.

We note GB Railfreight's comments regarding repetition in Executive Summaries and the body of documents. However, we believe that the inclusion of Executive Summaries in our documents is important since they permit readers to glean the principal issues without having to read the entire document, if they wish to do so.

We fully recognise Freightliner's points in relation to promoting transparency in the recalibration of the Capacity Charge, and charge setting more generally. As described above, we have taken significant steps in PR13 towards thoroughly communicating our work to stakeholders and promoting transparency of the charge. We will continue to do this.

5.2. Other comments on industry engagement

Summary of responses

Freightliner requested that Network Rail communicate to its staff that the Capacity Charge is designed to prevent Network Rail from being disincentivised to accommodate more traffic on the network. Freightliner also noted that it had had new services rejected by Network Rail staff due to the associated performance risk, and this is precisely what the Capacity Charge is designed to guard against.

Network Rail conclusion

We recognise this issue and have started the process of better communicating to our Route teams the purpose of the Capacity Charge.

[7] http://www.networkrail.co.uk/publications/delivery-plans/control-period-5/periodic-review-2013/

6. OTHER ISSUES RAISED BY STAKEHOLDERS: CONCLUSIONS

In addition to the consultation questions, we invited comments from stakeholders on any other aspect of the Capacity Charge work programme for PR13. These are summarised, along with Network Rail's responses, below.

6.1. Incentive properties of the Capacity Charge

Summary of responses

Incentives were widely discussed in consultation responses, with most respondents stating that the incentive effects of the Capacity Charge are, at best, limited. Some respondents considered that the existing charging methodology does not accurately reflect costs incurred by different types of operators and that the charge is not sufficiently granular to incentivise operators to use less congested parts of the network at less congested times. In addition, as franchised passenger operators are effectively held neutral to changes in charges and the services they run are specified in franchise agreements, some stakeholders suggested that the incentive effects of the Capacity Charge may be small for large parts of the industry.

PTEG considered that the Capacity Charge does not provide incentives to Network Rail since it is held financially immune to changes in congestion[8]. Furthermore, Freightliner considered that there should be an incentive on Network Rail to improve the management of recovery from incidents and therefore the impact of additional services on the network.

Network Rail conclusion

Our July 2012 consultation recognised that the current level of granularity in relation to the Capacity Charge may lead to diminished incentive effects. As discussed in Chapter 2, we have concluded that for CP5, Capacity Charges should be based on service codes rather than service groups. This represents a step-change in the level of geographic granularity on which the charge will be based, increasing the number of units four-fold from approximately 100 to 400 units. This will also provide operators with increased flexibility to define services in a way that incentive effects are improved. We consider that increasing the granularity will go a long way to sharpen incentives.

In relation to the comments made about the weak incentives of the charge in respect of franchised train operators, whilst we recognise that they must operate within the service specifications set out in their franchise agreements, we would expect that the impact of the charging structure is one of many considerations taken into account by government when developing franchises. It should also be noted that ORR and DfT are considering whether to expose franchised operators to changes in variable

[8] It should be noted that Transport Scotland made a similar point in relation to Schedule 8, expressing concerns about the effectiveness of its incentive properties since, at worst, Network Rail is held cost neutral for poor performance. While not the subject of this consultation, we do not agree with this statement. For Scotland, in the financial year 2011/12, Network Rail's PPM was 90.7% compared to a target of 91.7%, and the net Schedule 8 outlay was £4m. For England & Wales, in the same financial year, Network Rail's PPM was 91.7% compared to a target of 92.0%, and the net Schedule 8 outlay was £76m.

charges in the future. In addition, should franchised train operators wish to introduce additional services beyond their franchise specifications, the Capacity Charge does provide an incentive to encourage efficient utilisation of capacity.

By compensating Network Rail at the margin for additional services, the Capacity Charge encourages Network Rail to permit the running of additional services in instances where the performance risks would otherwise discourage granting new access rights. We do not agree, therefore, that the Capacity Charge fails to incentivise Network Rail to introduce new services (although it is important to note that there are a number of other considerations that must be taken into account when reviewing new service applications).

As to whether the Capacity Charge acts to reduce the incentive on Network Rail to manage its performance effectively as suggested by Freightliner, we strongly disagree. Network Rail is incentivised to manage performance via a variety of means, not least through performance-related regulated outputs, the possibility of reputational risk and the Schedule 8 regime itself. The Capacity Charge has no impact on these incentives. It should also be highlighted that the purpose of the charge is not to incentivise Network Rail to manage its performance effectively (which as discussed, is achieved through other means). Rather, it is to neutralise the increased Schedule 8 risk to Network Rail of accommodating additional traffic.

6.2. Legal and regulatory issues

Summary of responses

A number of freight respondents raised various legal and regulatory concerns in relation to the Capacity Charge. In particular they requested that Network Rail and/or ORR describe the legal basis for the Capacity Charge.

Freight operators examined three particular issues in relation to the legal basis of the Capacity Charge:

- its qualification as a ‘scarcity charge’;
- its qualification as a ‘performance scheme’; and
- whether it constitutes a ‘markup’.

Stakeholders cited the following pieces of legislation in their responses:

- EC Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (referred to below as ‘the Directive’); and
- The Railways Infrastructure (Access and Management) Regulations 2005 (referred to below as ‘the Regulations’).

Network Rail conclusion

We note the comments made in relation to the legal basis for the Capacity Charge.

Article 7(3) of the Directive states that:

“the charges for the minimum access package and track access to service facilities shall be set at the cost that is directly incurred as a result of operating the train service”.

This is reflected in paragraph 1(4) of Schedule 3 of the Regulations.

We understand the legislation to be referring to **marginal** costs directly incurred and note that the legislation **requires** that the charge is set on this basis – it provides little room for deviation from this principle. We note that the principles of marginal cost pricing are deeply ingrained across regulatory regimes in the UK and EU – the rail industry is no different from other sectors in this regard.

In general, marginal cost is the incremental cost associated with generating one additional unit of output beyond the level that is currently being generated. The marginal (Schedule 8) cost to Network Rail of accommodating one additional train on the basis of existing traffic levels is the incremental Schedule 8 cost. The approach used to derive Capacity Charge tariffs that has been used to date – and used by Arup in the current recalibration – provides a statistical estimate of precisely this quantity.

We note and understand respondents’ comments that the Capacity Charge does not appear to adhere to the principles of a ‘scarcity charge’. However, we do not consider that the Capacity Charge should be regarded as a ‘scarcity charge’ under the relevant legislation. This is because the Capacity Charge is set on the basis of the marginal Schedule 8 cost to Network Rail, which may not always be related to scarcity. We therefore consider that the provisions of paragraph 1(8) of Schedule 3 of the Regulations and article 7(4) of the Directive are not relevant to the operation of the Capacity Charge.

We have also been asked to consider whether the Capacity Charge should be regarded as a performance scheme. In this case, it would need to conform to the principles set out in Article 11(1) of the Directive, and Regulation 14 of the Regulations. As such, the Capacity Charge would need to minimise disruption and improve performance of the railway.

We do not consider that the Capacity Charge should be regarded as a ‘performance scheme’ since its primary role is not to improve performance (this is targeted through the established industry performance regimes). As set out in this document, the objective of the Capacity Charge is to allow Network Rail to recover additional Schedule 8 costs associated with the increased difficulty of recovering from incidents of lateness as the network becomes more crowded, and as such, we consider that the criteria pertaining to performance schemes contained in the legislation are not relevant to the objectives and operation of the Capacity Charge.

Respondents also suggested that the Capacity Charge could be considered to be a mark-up under the terms of Article 8(1) of the Directive and, therefore, subject to the affordability test. We do not believe that the charge should be regarded as a ‘markup’ since it is a marginal ‘cost directly incurred’.

6.3. Cost recovery

Summary of responses

Respondents questioned why Network Rail generates more income from the Capacity Charge than the income generated from the Variable Usage Charge and other charges, and argued that Network Rail over-recovers from the Capacity Charge.

Freight operators were particularly concerned about this issue, given that they do not pay significant Fixed Charges in CP4[9], so they will not benefit from a commensurate reduction in Fixed Charges. They stressed that this cost-recovery issue is very important to freight operators, given the thin profit margins on which they operate.

Some respondents argued that increased Schedule 8 costs should be recovered through the Fixed Charge. Similarly, Centro considered that the additional Schedule 8 costs from accommodating more traffic should be recovered through an alternative mechanism to the Capacity Charge, although we note that no specific suggestions were made.

Network Rail conclusion

The issue of cost-recovery was discussed in our July 2012 consultation and has been discussed on numerous occasions at the Capacity Charge working group. It is important to note that the marginal cost, in terms of increased Schedule 8 liability associated with accommodating additional traffic on the network, is one of the most significant costs faced by Network Rail. When additional services are granted access to the network, the performance risk – alongside the implications in terms of additional wear and tear costs – is a chief consideration. As such, we do not consider that it is inappropriate that the income recovered by means of the Capacity Charge is significant in magnitude.

It is helpful to distinguish the following features in considering the funds recovered through the charge:

- The Capacity Charge is based on **marginal costs**; and
- The Capacity Charge is applied to **all traffic**.

We believe that both of these features are implied by relevant legislation, and are consistent with economic principles of charging. We discuss each of these in turn.

Marginal cost pricing

As stated in the last section, we consider that the relevant legislation requires that the Capacity Charge is set on the basis of marginal costs.

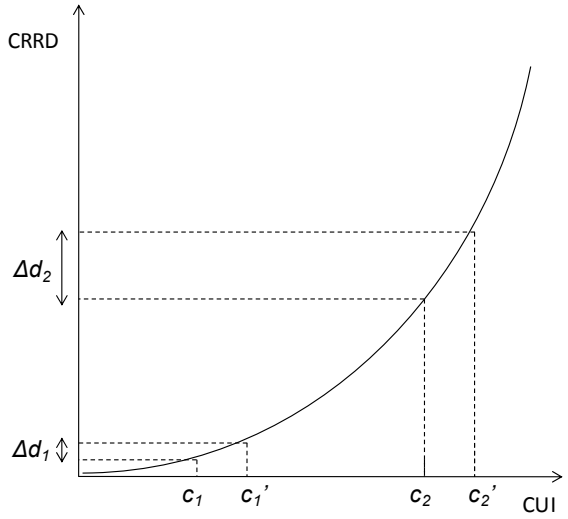
In addition, we believe that pricing on the basis of marginal costs is economically appropriate. By internalising costs to the agents 'causing' those costs, marginal cost pricing encourages operators to make decisions on the basis of the full incremental cost to the industry (rather than the internal cost alone). This gives rise to the correct economic signals, and should lead to the optimal allocation of capacity. Pricing on

[9] Freight only line charges do recover some fixed costs that are associated exclusively with freight.

the basis of marginal cost is also equitable, in the sense that the agent which causes the cost is the one that bears it in full. This approach also ensures that Network Rail receives the correct level of compensation at the margin, and is therefore not disincentivised from accommodating additional traffic on the network.

In our July 2012 consultation, we stated that we expected the marginal costs of accommodating additional services on the network would increase as capacity utilisation increases (i.e. the relationship between capacity utilisation and reactionary delay is 'convex' as shown in Figure 2, below). This has been borne out in the evidence submitted by Arup and Imperial College, although we note that the empirical results suggest that the 'curvature' is relatively modest.

Figure 2 – the relationship between capacity utilisation and congestion related reactionary delay



Applying the charge to all traffic

We maintain that the current approach of charging the Capacity Charge to all trains is appropriate. We do not believe that it would be possible to apply the charge only to certain types of traffic – for example only 'incremental' traffic – in a non-discriminatory manner. In particular, whilst some stakeholders have suggested that the Capacity Charge should only be levied on 'incremental' services, we believe that this could give rise to economic advantages to incumbent operators and services. This would be contrary to relevant legislation, and could stifle competition in the railway market.

If the charge was only levied on incremental traffic, there would be no incentive effect on the 'downside'. That is to say, there would be no reward for operators to ease congestion on the network. Under the current structure, operators benefit in terms of cost savings if they withdraw a service, as well as being charged more when an additional service is introduced.

We also note that there are sizeable administrative benefits from levying the Capacity Charge on all trains. If the charge were to be levied on only incremental traffic, there would be considerable difficulty in determining what constitutes 'new traffic', and then distinguishing between existing and incremental services for tracking and billing purposes.

We also note that Network Rail does not financially benefit from imposing the charge on all services, since income would otherwise be recovered via the Fixed Charge

levied on franchised train operators. By levying the Capacity Charge on all traffic, a discount is effectively given to operators on the Fixed Charge. We would stress that charges should be viewed as a package, and not in isolation.

Related to this, some respondents suggested that the Capacity Charge should be absorbed into the Fixed Charge. We do not consider that this would be appropriate. The purpose of the Capacity Charge is to ensure that Network Rail is not disincentivised to allow additional trains onto the network, due to the increased performance risk and hence increased Schedule 8 payments. If the Capacity Charge were to be absorbed into the Fixed Charge, this incentive effect would no longer exist as Network Rail would not be compensated for the associated additional costs at the margin. We also consider that transparency is an important principle in charging regimes, and believe that absorbing the Capacity Charge into the Fixed Charge would be against this principle, since it would make identifying these costs more difficult for interested parties. Overall, we believe that the Capacity Charge is the appropriate mechanism through which Network Rail recovers the incremental Schedule 8 costs associated with additional traffic.

Finally, we understand that freight and open access operators pay only marginal costs and do not, therefore, benefit from commensurately lower Fixed Charges. In relation to ORR's proposal to net off Capacity Charge revenue from the calculation of freight avoidable cost charges, we have highlighted the need for further consideration on how the procedure would work in practice, noting that only certain freight commodity types would be exposed to any freight-specific charge. We continue to consider that this is an important question, and await ORR's conclusions in relation to this issue.

6.4. Freight efficiency

Summary of responses

Responses from the freight industry highlighted the issue of freight's increasing efficiency, noting that these efficiency gains have not been reflected in the level of the Capacity Charge. The freight community also stated that freight operators are being 'penalised' for more frequent passenger services on the network.

Furthermore, GB Railfreight referred to a statement in our July 2012 consultation document: "under the current structure, operators and funders benefit from cost savings if a service is withdrawn, in the same way that they pay more when a service is added". It considered that not only does this seem a perverse incentive, but also if taken literally, considered whether freight should be entitled to ten years of Capacity Charge reductions (as a result of running fewer trains).

Network Rail conclusion

We note the evidence presented by respondents from the freight industry to suggest that freight operators have become more efficient over recent years, and recognise the work undertaken by freight operators to achieve these efficiency gains.

We note that, to the extent that freight operators have become more efficient, resulting in fewer trains run, they have seen a reduction in variable charges (including the Capacity Charge). This is the 'reward' that operators receive as a result of achieving increased efficiency. In addition, it should be borne in mind that, whilst freight as a whole has seen reduced mileage over time, this masks significant

variation among individual operators. No suggestions have been provided about how this could be taken into account.

We also note freight operators' concerns about the increasing number of passenger trains operating on the network and the impact this has on freight operators via the charging and incentives regimes. The fact remains that the legislation requires Network Rail to recover marginal costs. As passenger revenue has increased, the marginal Schedule 8 risk has risen, resulting in a requirement for higher Capacity Charges. This is a feature of a 'mixed use' railway.

We note DB Schenker's point that the charging structure should respect productivity gains. We believe that the Capacity Charge rewards operators' productivity improvements. This is because the charge is based on the number of train miles run. Therefore, to the extent that operators are able to carry the same loads or values of goods whilst running fewer train miles, they will be rewarded by means of reduced variable charges.

As stated in the last section, the structure of the Capacity Charge ensures that there are incentive effects on both the upside and the downside. This means that operators are rewarded financially, in terms of incurring fewer charges, for easing congestion on the network. We do not consider that this is a perverse incentive.

6.5. Overall impact of changes to the charging structure

Summary of responses

Respondents from the freight sector stressed that the impact of changes to the charging structure should be considered as a whole. The freight community noted that the compound effect of all such changes leads to charging uncertainty for freight customers.

Network Rail conclusion

Rail freight plays a vital part in the country's logistics industry and is an important user of the GB rail network. Network Rail values freight operators as vital partners in the continued success of the railway. We also consider that there are societal benefits from moving freight traffic from road to rail. We will continue to work with the rail community to support initiatives that facilitate this, for example, the Strategic Freight Network.

As we stated in our response to ORR's first PR13 consultation (and in subsequent documents), we recognise that rail freight operators face considerable competition from road hauliers and that road haulage enjoys simple charges and reasonable certainty about its costs. We believe that, as far as possible, rail freight pricing should strive to be simple and give as much certainty as is feasible to allow it to compete with roads. In considering changes to the rail freight regime we should all be mindful that the freight community could view even discussions of changes as unsettling.

We are mindful of the need to take a holistic view of the structure of charges, rather than consideration of each charge individually and acknowledge the importance of this to freight industry, in particular. We are working closely with ORR to ensure that a joined-up approach is taken in relation to all charges (both current and proposed) and note that in ORR's first PR13 consultation, it recognised the need to consider the interaction between the possible changes when reviewing the structure of charges. It

went on to state “our determination for CP5 will be a balanced ‘package’ of decisions and judgements covering all aspects of the regulatory framework”.

6.6. Infrastructure improvements

Summary of responses

Some respondents argued that the Capacity Charge does not recognise the impact of infrastructure improvements. PTC emphasised the growing importance of local authorities in the funding of rail services, and requested that the proposed changes do not act to discourage local authorities from developing services by increasing the costs and making service enhancements unaffordable.

Responses from prospective funders of infrastructure enhancements stated that they are concerned that a situation may arise in which they are funding infrastructure enhancements and are exposed to an increasing Capacity Charge as a result of more traffic on the network. It was requested that Network Rail provides examples of situations in which Capacity Charges fall as a result of increased capacity associated with enhancements, once the recalibration exercise has been completed. Transport Scotland stated that it is expecting an increase in the efficient use of capacity in CP5 and so Schedule 8 payments should fall. It stated that this should be reflected in the Capacity Charge recalibration.

Network Rail conclusion

We note the concerns expressed by stakeholders. We would emphasise that the recalibration process will take account of any enhancements which have occurred since its initial calibration. The proposed change to calculating the Capacity Charge at a service code level should make it more likely that local effects, such as enhancements, are ‘captured’ in the level of charges.

Any enhancements made during the course of CP5 will not be taken into account immediately, due to the nature of the recalibration exercise taking a ‘snapshot’ of the network at a given time. In the past, recalibrations of the Capacity Charge have been infrequent, with the recalibration in PR08 not being implemented in the charging regime. In the future, we should seek to avoid this, and consider that it is appropriate to recalibrate the Capacity Charge every five years in line with periodic reviews. We consider that this would strike the correct balance between ensuring that the charges are up-to-date and reflective of network capacity, and ensuring certainty of charging for stakeholders.

We recognise that enhancements may increase capacity, and where this is taken into account in the recalibration exercise, could lead to reduced Capacity Charge tariffs for the affected services. However, any such enhancements tend to lead to increased Schedule 8 payment rates due to the increase in traffic, which typically increase the Capacity Charge. Disentangling these effects would be difficult, and therefore we do not consider that it is appropriate to try to find specific examples.

We note Transport Scotland’s point about anticipating enhancements to improve performance and reduce Schedule 8 payments in CP5. We would emphasise, however, that the Capacity Charge is based on the marginal Schedule 8 impact (i.e. on payment rates) rather than total Schedule 8 payments. Moreover, we would emphasise that increased Capacity Charge income to Network Rail will typically be accompanied by commensurate reductions in Fixed Charges.

6.7. Arguments about 'self-contained' activities

Summary of responses

Transport Scotland suggested that the specific characteristics of the rail network in Scotland should be considered as it is a self-contained network with one dominant train operator. Similarly, Centro suggested that, in a case with just one train operator, the Capacity Charge should not apply as the train operator will pay Network Rail in the form of the Capacity Charge which is then returned to the train operator as Schedule 8 compensation. If this were avoided, there could be transactions costs savings which would keep money within the industry. Centro recommended investigating an option to rebalance Schedule 8 so that it is more cost neutral at the start of CP5. It stated that it would be preferable for Network Rail to get funding for these Schedule 8 costs through a mechanism other than the Capacity Charge. It was also argued that the charge should not be applied where there are a small number of services on a route.

Network Rail conclusion

We do not consider that the isolation of an operator from other operators' services should impact on the Capacity Charge calculation. This is because the Capacity Charge reflects the additional Schedule 8 costs to Network Rail of an additional train, regardless of which operator to which the additional liability is ultimately paid (e.g. it could be that the increased liability is to the same operator that is introducing the service).

In response to Centro's suggestion to effectively neutralise the Capacity Charge and Schedule 8 regime in isolated parts of the network, we consider that any such Schedule 8 adjustments could actually increase complexity in the regimes. Such an approach would require bespoke contractual changes to Schedule 8, and an individual calibration to ensure neutrality. We consider that the Capacity Charge is the appropriate mechanism to recover Network Rail's additional Schedule 8 liability, and note that Centro has not suggested any specific alternatives.

We note concerns about the workings of the Capacity Charge when there are no or few services operating on the network. However, the Capacity Charge calibration is such that, any Constant Traffic Section (CTS)/timeband combination with a CUI of zero (i.e. there is no traffic on that section of the network at that time) is assigned a Capacity Charge tariff of zero. The calculation recognises the fact that adding an additional train on the network where there are no others will not give rise to any reactionary delay. However, when the CUI is greater than zero, the marginal cost of an additional train is positive, and should be recognised as such. This is in line with Arup's and Imperial College London's empirical findings. For further details in relation to this point, please see Arup's report.

6.8. Suggested alternatives to the Capacity Charge for freight

Summary of responses

In its response, Freightliner, supported by other freight operators, expressed concerns relating to a lack of information regarding the baseline above which trains are considered to be incremental. It stated that there should be a direct link between the recalibration of Schedule 8 and the Capacity Charge, due to the strong

connection between the two. It suggested that one way to do this would be to incorporate the Capacity Charge into the Network Rail Schedule 8 benchmark, which would have the additional benefit of strengthening incentives for train operators and Network Rail. In the winter of 2012/13, freight operators put forward a proposal in relation to this for consideration by Network Rail and ORR, and this was discussed at the December Capacity Charge working group.

Separately, Rail Freight Group also suggested that the Capacity Charge should be spread equally over services, so the additional services will be paying less than the marginal rate. This would mean that Network Rail could recover the appropriate amount and bring an end to the issue of what it regarded as over recovery from freight operators.

Network Rail conclusion

We welcome freight operators' proposal to include the Capacity Charge in the Schedule 8 performance regime. We are grateful to Freightliner in particular for spending the time to lead the development of this proposal.

However, we consider that there are a number of reasons why the adjustment of Network Rail's benchmark in the Schedule 8 regime may be problematic. These are described in more detail below.

1. Time lags

The proposal is to adjust the benchmark annually, which we consider is not sufficiently granular over time (i.e. it is not sufficiently responsive to changes in traffic). To be more specific, this means that any changes in the number of trains on the network will not be taken account of immediately. This is in contrast to the provisions under the Capacity Charge.

For example, if Network Rail accommodated additional trains after the benchmark had been adjusted, these trains could have a detrimental impact on performance immediately, but this impact would not be taken account of until the next benchmark adjustment. Therefore, Network Rail would be financially worse off due to increased Schedule 8 payments as a result of worsened performance for the entire year. Furthermore, in the last year of a control period, the impact of any increase in traffic would not be compensated for. Overall, this would curtail Network Rail's incentives to accommodate additional traffic.

2. Interaction with the passenger regime

The proposal, as described by freight operators, would only apply to the freight regime, with the passenger Schedule 8 regime remaining as it is currently. However, due to the level of interaction between the passenger and freight regime (the presence of freight impacts on Network Rail's ability to meet its passenger performance targets, and *vice versa*), the impact of this proposal on the passenger regime would need to be taken into account.

Going forward, we believe that it would be necessary to further develop this idea while considering any potential interactions with the 'star model' and the passenger regime. We note that freight operators may want to consider whether this problem could be overcome by an appropriate 'congestion factor' in the proposed benchmark-setting equation.

3. Freight operators' incentives

Under this proposal, the freight community as a whole would be impacted for any increases in traffic, rather than the freight operator to which this increase is attributable. This means that, if a freight operator introduces an additional train on the network, they will not pay for the full impact of that train. Instead, all freight operators would be affected by an increase of the Network Rail benchmark, so they would share the financial impact.

Whilst the freight community has indicated that it is content with this, we consider that this would have a negative impact on incentives as the costs of introducing a new service would not be fully internalised by the operator responsible. Individual freight operators would not be paying the marginal cost of an additional service and so would be incentivised to introduce a higher than optimum number of trains onto the network.

Whilst we do not believe that the proposal put forward by freight operators could be pursued through PR13, we expect the RDG-sponsored review of charges to take place early in CP5 to revisit this proposal.

In addition, we consider that Rail Freight Group's suggestion to spread the Capacity Charge equally over services is not consistent with the relevant legislation. We consider that this would send incorrect incentives to both operators and Network Rail. Specifically, the full incremental costs associated with adding an additional service would not be recovered by Network Rail, so that it would be disincentivised to accommodate new traffic. In addition, since incremental trains would not be liable for the full marginal cost imposed, the incentives to freight operators would be economically sub-optimal. Similar issues are discussed in more detail in Sections 6.2 and 6.3, above.

6.9. Bespoke charging arrangements

Summary of responses

Some stakeholders suggested that it would be appropriate to consider bespoke charging arrangements in CP5, in order to overcome some of the perceived inadequacies of the Capacity Charge.

Network Rail conclusion

As set out above, the Capacity Charge was introduced as a means of providing a 'liquidated sums' method of ensuring that Network Rail is compensated for the increased performance risk associated with accommodating new services and to send appropriate economic signals to train operators. It was intended to reduce industry transactions costs by eliminating the need for case-by-case negotiations every time a new service was introduced. Since the charge was introduced to guard against the transactions costs associated with case-by-case negotiations, we believe that it would be inappropriate and counter-productive to enter bespoke arrangements in relation to the charge in CP5.

There are a number of other reasons why we consider that the Capacity Charge is different to other charges, and does not lend itself to bespoke arrangements. In particular:

- Relative to other charges, the Capacity Charge recovers costs which are inherently difficult to quantify ex-ante. As such, deriving bespoke charges which are accurate will be likely to be excessively complex and costly. And in fact, the 'best estimate' available is likely to be the analysis underpinning the Capacity Charge calibration.

- We expect bespoke charges to be set on the basis of equivalent and non-discriminatory practice, as required by relevant legislation (including the Competition Act). There are significant difficulties associated with comparing and measuring capacity itself, and also in measuring and comparing the impact of different schemes on capacity. Therefore, we do not believe that it will be possible to ensure equivalent and non-discriminatory practice in relation to bespoke Capacity Charges.

We will not, therefore, be proposing bespoke charging arrangements relating to the Capacity Charge in CP5.

6.10. Other issues

This section responds to a number of other issues raised by stakeholders.

1. *Freightliner noted that TOC revenue has increased by 55% since the Access Charges Review 2000, and hence requested that Network Rail clarify whether this increase includes RPI adjustments over that time, as the Capacity Charge has been adjusted by RPI annually. As the number of passenger trains has increased over the same period, it suggested that it would be more relevant to use revenue per train mile.*

In principle, the Capacity Charge should reflect the most up to date Schedule 8 payment rates, which in turn relate to passenger revenue (for the passenger regime). In PR08, Capacity Charge tariffs were updated for RPI alone, so that previous revenue changes were not accommodated.

For the current recalibration, we have updated not only the underlying relationships, but will also take account of the CP5 Schedule 8 payment rates. Therefore, it will not be necessary to seek to take account of a metric for revenue per train mile.

2. *Direct Rail Services noted that it would be concerned if there were increases in the Capacity Charge above all other PR13 increases, and asked if the time since the last recalibration is the benchmark for establishing additional services. It also asked if the new recalibration will take account of 10 years of RPI.*

The last calibration took a 'snapshot' of the network prior to its implementation. The current recalibration will therefore take another, more recent, snapshot of the network. This will be the benchmark for establishing the marginal impact of additional services. Historically, the Capacity Charge has been updated for RPI. In line with our other charges, we expect that the Capacity Charge will be updated for RPI on an annual basis during CP5.

3. *Freightliner requested to see the calculations for the payments and an explanation of the Capacity Charge tariff.*

We have shared illustrative calculations of the payments with stakeholders at the monthly Capacity Charge working group. In addition to this, we have held a separate workshop to communicate the statistical relationships derived from the recalibration, and the tariff calculation with stakeholders. Arup's report provides more detail on this and an explanation of the calculation of rates.

4. *Centro questioned how the Capacity Charge compensates for Schedule 8 payments at individual TOC and service group level. It stated that it must over-compensate in some areas and under-compensate in others, and was unsure about the implications of this in aggregate. It requested that Network Rail provide information about what work has been undertaken to assess this, with specific case studies if available.*

Like other charges and incentive regimes in the rail industry, the Capacity Charge is effectively a 'liquidated sums' regime. It is, therefore, possible that the Capacity Charge will over-compensate Network Rail in some instances, and under-compensate in others, at the margin. Overall, we believe that the current structure of the Capacity Charge saves industry resources by reducing the need for case-by-case negotiations to compensate Network Rail for the additional performance risk associated with accommodating new services on the network. We do not consider that it is appropriate to make comparisons between the total financial implications of Schedule 8 and the Capacity Charge. There will be little relationship in aggregate. This is because the Capacity Charge is calibrated so that it is cost reflective **at the margin**. We believe that the Capacity Charge, and the work underpinning it, provides the most robust evidence for the performance implications of adding incremental services. We would caution against the use of individual anecdotes.

5. *PTEG questioned whether, and by what process, Network Rail is able to anticipate Schedule 8 costs to recover them. It also asked if an ex-post analysis had been undertaken to determine how well Capacity Charge payments and Schedule 8 payments map onto each other.*

This is, in fact, the purpose of the Capacity Charge recalibration. We consider that the work undertaken by Arup as part of this process provides the best estimate of the marginal impact in terms of additional Schedule 8 costs as a result of new services.

6. *RFG requested further information in relation to the scale of new rates for CP5.*

The scale of the new rates has been published in draft form in our draft pricelist in Appendix 3 of this document.

7. *Freightliner noted that Network Rail has received funds for improving train performance and increasing network capacity. Therefore, for any investment which has been made to enhance the network and enable more services, any deterioration in performance will not be in proportion to the increase in services as the new network should be more capable to handle a busier timetable. Network Rail's performance targets should therefore reflect this.*

We expect performance targets to take account of the most up to date considerations, including ongoing and historic enhancement activities and traffic growth.

Any investments to improve network capacity and train performance should result in, for the area where investment occurs, reductions in CUI and CRRD, *ceteris paribus*.

As such, the recalibration of the Capacity Charge should reflect the improved infrastructure by means of a lower charge than would otherwise be the case. This highlights the importance of undertaking recalibrations on a reasonably regular basis, so that changes in infrastructure can be taken into account at a reasonable frequency.

8. *Freightliner argued that the proposals seem to lead to an increase in charges, and this is not aligned to ORR's duty to promote the carriage of goods by rail as there is no equivalent charge for road users.*

We expect ORR to take an overall view of charges. We note that ORR is required to set charges that encourage efficient utilisation of the network, optimise whole industry costs and reflect actual costs incurred through use of the infrastructure.

9. *DB Schenker considered that greater recognition should be given to the fact that, unlike franchised passenger operators, freight operators are subject to a benchmarked 3rd party delay performance regime which already compensates Network Rail for each minute of delay which freight operators cause to third parties on the network.*

Whilst we recognise that freight operators have a third-party delay benchmark, we note that this is only relevant to the freight 'side' of the performance regime. In contrast, the Capacity Charge is based on the workings of the Network Rail 'side' of the regime. We, therefore do not believe that this is a relevant consideration. However, we would be happy to consider any specific arguments relating to this point.

10. *Freightliner noted that Network Rail has received considerable funds as part of the CP3 and CP4 settlement to improve train performance and increase network capacity. It noted that, where there has been investment made to enhance the network to enable more services, any deterioration in performance levels (including reactionary delay) should not be in proportion to the increase in services as the enhanced network is designed to be more capable of a busier timetable. Freightliner suggested that Network Rail performance targets should reflect this, irrespective of Network Rail's actual performance.*

Our recent performance has been affected by several periods of extra ordinary flooding, two major fires and several bouts of winter snow and ice. The prolonged effects have had an impact on performance but additionally, made underlying performance particularly difficult to monitor.

In order to meet regulatory targets in the future, Network Rail has taken a number actions to improve performance, including the ongoing development of the LSE Asset Management Programme and the establishment of the West Coast South Reliability Programme.

We will continue to respond to the difficult and sometimes competing challenge of balancing performance, capacity, punctuality, journey time and efficiency.

APPENDIX 1 – SUMMARY OF RESPONSES TO CONSULTATION QUESTIONS

Consultation question 1
Do you agree that, beyond the arrangements that are currently in place, Capacity Charge tariffs that vary across time should not be introduced?

We received a mixed response to this question. Centro, TfL, PTEG and Alliance Rail Holdings shared the view that further disaggregation would be preferable in order to send more appropriate price signals to operators about efficient use of capacity on the network. Centro suggested that a night-time tariff would be appropriate while TfL suggested differentiating between peak and off-peak charging.

PTEG expressed a preference for further disaggregation by time period. It stated that TOCs, in particular, can only make decisions relating to timetabling rather than routing and therefore, such disaggregation would allow them to adapt timetabling decisions to make more efficient use of capacity.

AECOM and Alliance Rail Holdings both recognised the benefits that further time disaggregation could bring, but also noted that the administration of such a system would be complex and that implementation by CP5 would be difficult.

Transport Scotland argued against introducing additional complexity into the charging regime unless strong supporting evidence exists. In addition, all freight stakeholders' responses (Freightliner, DB Schenker, Rail Freight Group and GB Railfreight) supported not varying tariffs across time beyond the current arrangements, stressing the need for a simple and easily understandable charge which can be communicated to their customers. DB Schenker stated that any further differentiation in the Capacity Charge could potentially create competitive imbalances between freight operators. GB Railfreight argued that geographical and time based charging could result in perverse incentives in routing certain services. Freightliner stated that a time neutral Capacity Charge does not create material incentives, but is a surcharge on running trains.

Consultation question 2
Do you agree that the weekend discount should remain in place? Do you agree that the magnitude of the discount should be revisited, and informed by analysis undertaken as part of the Capacity Charge recalibration exercise?

Rail Freight Group supported the continuation of the weekend discount, stating that it is productive for freight growth due to the need to encourage parts of the retail sector to use rail through Sunday operation.

Centro stated that a network-wide weekend discount is not appropriate as it does not accurately reflect capacity utilisation, and considered that an overnight discount would be more suitable. PTEG echoed this view, disagreeing with a uniform weekend discount. AECOM and Centro suggested there could be merit in geographical variation in the level of the discount applied.

GB Railfreight and PTEG suggested that the level of discount should be varied between Saturday and Sunday, to reflect the difference in capacity usage across the weekend. PTEG suggested that, in not varying between Saturday and Sunday rates, Network Rail is discouraging traffic when the network is busy but also discouraging

traffic when the network is quiet to allow for possessions. DB Schenker suggested that the recalibration work should take into account the effect of Network Rail's weekend possessions as, in doing so, it is a significant user of capacity itself.

All consultation responses in relation to the weekend discount agreed that the magnitude of the discount should be revisited. PTEG stated that it did not believe that there is a justification for the current level of the discount.

Consultation question 3
Do you agree that the Capacity Charge should be disaggregated to train service code (rather than train service group) level in CP5?

Our consultation proposal to disaggregate the Capacity Charge to train service code level (as opposed to train service group level) was met with wide-spread agreement from many respondents. However, some respondents noted that, in charging at a more granular level, large variations between charges would need to be avoided. Some respondents suggested that it could be disaggregated further to reflect route sections. This could provide even sharper price signals than charging at service code or group level.

PTEG raised an issue in relation to long distance services. It stated that a uniform discount for each service does not provide incentives for long distance services to avoid problem areas, such as congested bottle necks.

First Capital Connect/First Group was the only party to disagree with our consultation proposal, requiring a quantitative case to support the proposal.

Consultation question 4
What are your views on developing a tool to calculate Capacity Charge tariffs for new or amended service codes? How could this be best accommodated contractually?

PTEG stated that the tool should reflect detailed operational constraints, and Centro stressed the need for it to be reactive to circumstances and flexible. First Capital Connect/First Group recognised, however, that the Capacity Charge needs to be updated in a cost effective way and that the level of resource used to develop this tool should, therefore, reflect the likely benefit.

AECOM made suggestions regarding the process for developing the tool. It proposed that data should be assembled at a granular level with specific timetable information, in order to determine the Capacity Charge for each service code. This could then be used to calculate weekend discounts, freight tariffs and further amendments to tariffs as outlined above. It suggested that, by implementing this as a simple, spreadsheet-based solution, complexity could be avoided.

Centro and PTEG suggested that the tool should be designed to reflect the implications of additional train services on capacity utilisation which would therefore require recalibration of rates for all services on that route. TfL considered that the tool should also be able to take account of infrastructure changes which affect capacity. Such enhancements could mean that an increase in trains on the network may not necessarily cause an increase in congestion and, therefore, reactionary delay.

First Capital Connect/First Group agreed with our proposal that supplemental agreements to Schedule 7 would be the best way to make contractual provisions for accommodating new tariffs determined by the tool.

Consultation question 5
Do you agree that all freight operators should pay the same single Capacity Charge tariff in CP5? What are your views on the level of the discount applied to freight services?

Level of disaggregation

The proposal to charge freight operators the same single Capacity Charge tariff in CP5 resulted in a general overall agreement, and all freight operators agreed with this proposal. This was also endorsed by First Capital Connect/First Group.

Rail Freight Group and DB Schenker expressed a preference for the charging structure to remain as simple as possible, and therefore remain easily understandable, so they can continue to communicate their charges to customers while reducing complexity and transaction costs. Freightliner agreed with this on the basis that all freight operators are charged the same, avoiding the problem of discrimination.

However, other stakeholders were against this charging structure, principally due to the incentive effects for freight operators. Centro, TfL, PTEG and Alliance Rail Holdings all expressed the view that this approach provides no incentive for freight operators to make the most efficient use of network capacity, especially as freight operators have, in principle, more flexibility in terms of where and when they run trains. These organisations would therefore like to see freight operators exposed to the same regime as passenger operators.

AECOM expressed a slightly different view on this matter, suggesting that there should be some geographical variation in freight Capacity Charges to reflect demand for capacity and the conflict between passenger and freight operator demand.

The freight discount

In terms of the discount applied to freight services, GB Railfreight and Freightliner stated that they would like to see an increase in the discount to reflect the flexible nature of freight trains. They argued that the discount should also reflect the fact that most freight trains run overnight or use off-peak capacity.

DB Schenker stated that it would like the discount to be reviewed to ensure no over-recovery of costs, and pointed out that freight operators are already subject to a benchmarked third party delay performance regime.

A point for consideration, raised by TfL, was that these charges should apply to booked freight slots rather than services which are actually run. This, TfL stated, is because booked slots can constrain capacity which would otherwise be available for passenger services. These can also have the effect of increasing congestion on the network even if the slots are not actually used.

Consultation question 6

Do you agree with Network Rail's proposals in relation to the *de minimis* threshold?

There was unanimous agreement amongst all parties which addressed this question. Some parties, such as Centro, stated that they would like to see this threshold applied to all service proposals that have little impact on network performance.

However, concerns were raised by DB Schenker relating to the implied cross-subsidy of this concept. It has requested details about how many services this relates to and the total value of the Capacity Charge that this corresponds to in order to fully analyse this effect.

Consultation question 7

What are your views in relation to arrangements for handling large timetable changes in CP5?

DB Schenker argued that changes of this scale can be foreseen many years in advance, and should therefore be taken into account during the recalibration process. It considered that this would avoid mid-control period changes, which most freight operators were against (GB Railfreight, Freightliner, DB Schenker and Direct Rail Services all shared this view) since this would result in a lack of confidence for both freight operators and their customers in the CP5 charging regime. Furthermore, GB Railfreight argued for charges to be fixed for as long as possible, extending beyond each control period as otherwise, this could negatively impact on current investments made under the previous charging regime. Changes should take into account the 30 year investment timescales that freight operators face. This view is echoed by Freightliner, which considered that charges should be fixed for as long as possible, even beyond each control period, in order to make long term investments. It does however understand that certain changes do need to be made, but only when it is necessary for the alignment with other elements of the performance regime.

TfL's response stated that funders require sufficient notice of changes to the charge to be able to budget for them. In respect of this, they also requested that changes be kept to a minimum. In addition, TfL argued that when large projects or enhancements increase capacity on the network, this increased capacity should be taken into account.

Both Centro and PTEG considered that it was essential to have a mechanism in place for handling changes to timetables and network capability. They also considered that this mechanism should cover changes with a more localised performance impact rather than just the major projects, as investors do not currently receive the performance benefits from funding improvements.

AECOM suggested that the tool to calculate Capacity Charge tariffs for new or amended service codes could be extended to deal with large timetable changes.

Consultation question 8

Do you consider that the proposed methodology for recalibration of the Capacity Charge is appropriate?

Overall, the consultation responses supported the use of the proposed methodology.

AECOM noted that the advantage of such an approach is that the calculations are objective and therefore the results do not require the introduction of subjective

judgement. It recognised, however, that the method involves considerable input data and processing, and lacks transparency as to how the inputs relate to the final tariff. AECOM proposed that a simpler methodology could be found for calculating the costs for each service code and time band.

DB Schenker and GB Railfreight expressed concerns regarding the issue of over-recovery with this charge, and therefore requested that the methodology attempts to eliminate this. GB Railfreight specifically requested safeguards to ensure that over-recovery does not happen.

Some of the responses stated that the methodology should account for the possibility that operational efficiencies can be made as a result of increases in timetabled train miles. Centro stressed that there is not always a direct relationship between reactionary delay and capacity utilisation, and that sometimes it may be that this relationship is not increasing due to operational efficiencies. Centro considered that, given the way the Capacity Charge is currently calibrated, it can actually reduce incentives to plan services more reliably. This is because a more intensive service will always be subject to a higher charge with this methodology, regardless of any operational efficiencies.

Furthermore, Centro stated that the calculation of this relationship appears to include a factor which means that only Network Rail caused delays are included, and therefore Network Rail could defray its own risks associated with Schedule 8 costs. This could result in a reduction of incentives to improve Network Rail's performance and manage delay more effectively. Centro, therefore, did not support the use of this methodology.

Freightliner stated that it would need to understand what baseline is proposed in order for it to fully respond to this question. First Capital Connect/First Group questioned what assessment had been made of the overall benefit of not recalibrating, or of absorbing the Capacity Charge back into the Fixed Track Access Charge.

Consultation question 9
Do you agree that the CUI should be used as the basis for Capacity Charge recalibration as part of PR13?

Respondents were unanimous in their agreement with this proposal. We note, however, that this was mostly due to a lack of proposed alternatives. Centro and PTEG stated that they would want to see a better approach developed in the future since, in their view, the CUI fails to capture all the complexities of operating on a congested network. Centro and PTEG proposed a simplified (compared to Railsys), national model to assess the performance impacts of detailed operational timetable changes which would be able to better predict performance impacts of service changes, resulting in bespoke charges.

Alliance Rail Holdings advised that other metrics should be used to reflect constraints at junctions and stations. It also considered that the CUI should be assessed against technical headways[10] rather than planning headways[11], as these have a greater role

[10] Technical headway refers to the physical headway between trains allowed by the signalling. This is generally measured on non-restrictive aspects (green signal running) and is measured to the nearest second

to play in causing reactionary delay. Similarly, it stated that modelling should reflect the technical limits of the signalling system, rather than the planning rules.

AECOM stressed that ownership of the CUI calculation should be established, as well as the importance of using up-to-date calculations.

John Haith's PhD work analysed the use of the CUI measure and found it to produce reasonable results. He identified that its main shortfall is not including junctions and station throats, and also that in using 'compression', it eliminates the planning headway gaps in the timetable, which determines whether or not reactionary delay actually occurs. His response suggested that the most effective methodology would be based on the concept of 'timetable heterogeneity', which would address statistical noise. His response was mindful of timescales however, and noted that the CUI could offer the most appropriate way forward for CP5.

Freightliner requested confirmation from Network Rail that it has calculated CUI for every route and every time period.

Consultation question 10
What are your views about accounting for other determinants of reactionary delay as part of the CP5 recalibration of the Capacity Charge?

Generally, respondents accepted the need to account for these determinants. Rail Freight Group, however, stated that the benefit of additional modelling complexity in attempting to account for these determinants is limited due to Network Rail being recompensed in full, or more, for the cost of reactionary delays. In its view, therefore, Network Rail is not incentivised to reduce them. It stated that in order to prevent this, the interface between the Capacity Charge and the recalibration of Schedule 8 needs to be aligned.

AECOM suggested that the calculation should be relatively high level given the time constraints, and could incorporate generic adjustment factors rather than analysis of each element in detail. Freightliner stressed the importance of a consistent method being applied throughout. TfL supported taking other determinants into account where practical, providing they can be determined through robust data analysis. Furthermore, TfL encouraged the consideration of junctions and station throats, which are key to the definition of capacity. Freightliner expressed the need to include areas where the network has been enhanced, and so has improved capacity or performance benefits.

John Haith stated that introducing route section specific variables to try and account for observed anomalies is problematic and stressed the need for a consistent approach.

Consultation question 11
What are your views about the functional form used to model the relationship between reactionary delay and capacity utilisation?

DB Schenker considered that this should be a task for the industry working group. Centro required empirical evidence from Network Rail to form a proper view on this

[11] Planning headway refers to the headway as specified in the Timetable Planning Rules and is the industry agreed minimum margin to plan the timetable to use. Changes to the Timetable Planning Rules are required to be consulted on with industry. This value is measured to the nearest 30 seconds.

matter, but stated that it would be keen to be involved in any analytical work. In addition, it also requested consideration of the impact of reducing service levels or other changes on this relationship, and hence the functional form.

Alliance Rail Holdings recognised the importance of this model and considered that it should eventually form a better basis for Network Rail in deciding when it is acceptable to allow additional trains onto the network on performance grounds. It considered that this question should be addressed in the consultancy work.

PTEG argued that, while it may be the case that reactionary delay is an increasing function of capacity utilisation in aggregate terms, this is not the case for specific sections of the network, as other types of operational efficiencies could reduce the delay.

On the other hand, analysis from John Haith suggested that, out of all functional forms tested, an exponential form will give the best result for this relationship.

Consultation question 12
How do you think the industry can guard against analytical risk in the Capacity Charge recalibration? In the unlikely event that statistical recalibration approach described above is not fully successful, how should we proceed to secure a Capacity Charge which is fit for purpose in CP5?

Centro, PTEG and DB Schenker agreed that the working group would be the appropriate forum in which to assess this issue.

DB Schenker considered that in the event that the analytical work is not sufficiently robust to underpin some or all Capacity Charge tariffs in CP5, reverting to PR08 tariffs and updating for RPI would be the appropriate action. TfL considered, however, that it would be appropriate to revert to PR08 tariffs which have been updated for changes in the Schedule 8 payment rates, while PTEG stated its support for continuation of the charge in its current form. Freightliner proposed an alternative option which would be to incorporate the Capacity Charge into Schedule 8 through adjustment to the benchmarks.

AECOM considered that, at this stage, it should not be necessary to define any such contingency plan. Instead the focus should be on progressing with the recalibration exercise, and analysing any underlying causes should the approach be unsuccessful.

Centro stated that it does not support any continuation of the approach used for CP4, since in its view, it is fundamentally flawed in its rationale and operation, and as such it is unfit for purpose. Centro suggested dropping the Capacity Charge in its entirety and considering other ways for Network Rail to insure against any Schedule 8 cost increases in the case of unsuccessful recalibration.

Consultation question 13
How should changes in the Capacity Charge between CP4 and CP5 be managed?

Communication and publication of the revised charges prior to the start of CP5 was a recurring theme in the responses to this question. Alliance Rail Holdings noted that the biggest issue is likely to arise with freight and open access operators since they are not insulated from increases to charges via franchise agreements. It stated that it would expect ORR to decide on how any significant increases to the charge would be introduced.

DB Schenker agreed with the proposal to provide an explanation of any differences in the charge between CP4 and CP5 and also stated that if the charge is to materially increase, these increases should be introduced gradually over the course of CP5.

Centro argued that the impacts of any increases in the Capacity Charge must be fully understood, in light of several affordability issues. It argued, for example, that for some services in CP4, the Capacity Charge represented 20% of the overall cost of running the service. An increase in the charge would be likely to result in more service withdrawals, especially those running during off-peak hours and on uncongested routes.

GB Railfreight's response stated that if there is to be an increase in the Capacity Charge for freight, it needs to be linked, at a minimum, to better quality freight paths (with faster overall freight velocity and as little change in braking and accelerating as possible), since this has an impact on fuel usage, costs and performance.

Consultation question 14
Do you support the creation of a Capacity Charge working group? How do you consider that its membership should be decided? What should be its remit?

Generally, respondents supported the creation of a working group, with respondents proposing the following representation:

- Owning groups;
- Train operators;
- Freight operators;
- Open access operators;
- Funders;
- PTEs;
- Network Rail;
- Network Rail's consultants; and
- ORR.

It should be noted, however, that three respondents did not support this proposal. First Capital Connect/First Group considered that Network Rail and ORR should

carry out the required work, if ORR insists that the charge is to remain. Direct Rail Services stated that it is not convinced of any benefit from the group, and suggested that it would probably be used as the basis for any further Capacity Charge adjustments, which it would not support. It requested that Network Rail and ORR should provide further information on their perception of the functionality of the group and what its likely effect will be on the consultation process.

AECOM suggested that the primary objective of its remit should be to manage expectations regarding the recalibration which, it considered, would minimise any surprises from the results.

GB Railfreight stated that, if the creation of the working group is necessary, it should be formed only for a short period, noting that freight operators' resources are limited due to the large number of consultations currently taking place and the need for engagement and formal responses.

Consultation question 15
Do you have any further views or suggestions about our approach to stakeholder engagement in general?

A small number of respondents commented in relation to Network Rail's general approach to industry engagement on its Capacity Charge proposals.

Rail Freight Group noted that the consultation had been released alongside a number of others relating to PR13. Similarly, Freightliner requested earlier consideration of the issues and consultations with regard to structural changes to charges in CP6.

DB Schenker requested that information is shared with the Capacity Charge working group in advance of any meetings. Freightliner requested that detailed data is provided throughout the process to aid its own analysis, rather than just high-level information. In its view, ORR and Network Rail should plan the workload across the five year control period, given the limited resources available.

Consultation question 16
Do you prefer fewer and longer consultations or more regular and shorter consultation?

Overall, the preference here was for more regular and shorter consultations although opinions were mixed. TfL and AECOM required sufficient notice of consultations, in order to respond. AECOM also suggested that consultation topics are more focused.

Consultation question 17
Do you have any further views or suggestions about our approach to stakeholder engagement in general?

TfL requested that Network Rail makes its consultation material easier to find online, with a single, clearly advertised area devoted to consultations.

GB Railfreight stated that consultations are repetitive, and requested less repetition in future consultations. It also requested a clear timetable of consultations for the next two years.

Freightliner stated that it would appreciate earlier consideration of the issues and consultations in CP6 with regard to structural changes to charges. It also noted that greater transparency and sufficient time to understand any changes would be useful.

DB Schenker noted that freight operators require a simple charging framework, and that each aspect of the charging regime should be considered together in order to understand the implications as a whole.

APPENDIX 2 – SUMMARY OF OTHER ISSUES RAISED BY STAKEHOLDERS

Incentive properties of the Capacity Charge

Incentives were widely discussed in consultation responses, with most respondents stating that the incentive effects of the Capacity Charge are, at best, limited. Centro and Transport Scotland argued, for example, that the Capacity Charge no longer fulfils its objectives of providing appropriate incentives and price signals to make efficient use of network capacity. PTEG doubted whether the proposed changes to the charge – which it considered would be incremental – will improve incentives.

Centro, PTEG and DB Schenker argued that the charge is not sufficiently granular to incentivise operators to mitigate their performance risk or to incentivise operators to use the network at less congested times of the day. Centro further suggested that there are no incentives for long distance services to avoid congested parts of the network, as the charge is diluted across the entire route. It argued that this results in discrimination against urban rail services, since they are more expensive per mile to operate than longer-distance services operating on the same route.

PTEG considered that the existing charging methodology does not accurately reflect costs incurred by different types of operators and services and, as such, provides weak incentives to train operators, Network Rail and public sector sponsors. Furthermore, it argued that the charge fails to provide any incentives to franchised train operators which are protected through their franchise agreements. Freightliner agreed, and also emphasised that franchised train operators are constrained by their service specifications, limiting the incentive properties of the charge further.

PTEG considered that the Capacity Charge does not provide incentives to Network Rail since it is held financially immune to changes in congestion[12]. Centro questioned whether there had been any analysis into whether the Capacity Charge accurately compensated Network Rail for increased Schedule 8 costs on a route-by-route basis, and also whether it acts to reduce the incentives on Network Rail to manage its performance effectively.

Legal and regulatory issues

DB Schenker, Freightliner, Direct Rail Services and Rail Freight Group raised various legal and regulatory concerns in relation to the Capacity Charge, citing the following pieces of legislation in their responses:

- EC Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (referred to below as 'the Directive'); and

[12] It should be noted that Transport Scotland made a similar point in relation to Schedule 8, expressing concerns about the effectiveness of its incentive properties since, at worst, Network Rail is held cost neutral for poor performance. While not the subject of this consultation, we do not agree with this statement. For Scotland, in the financial year 2011/12, Network Rail's PPM was 90.7% compared to a target of 91.7%, and the net Schedule 8 outlay was £4m. For England & Wales, in the same financial year, Network Rail's PPM was 91.7% compared to a target of 92.0%, and the net Schedule 8 outlay was £76m.

- The Railways Infrastructure (Access and Management) Regulations 2005 (referred to below as 'the Regulations').

In particular they requested that Network Rail and / or ORR describe the legal basis for the Capacity Charge, and in particular explain it in the context of the Directive and Regulations.

They suggested that the Capacity Charge is a form of mark-up and that, therefore, it should be subject to an affordability test[13]. Freightliner suggested that given the elasticity of most rail freight commodities, the Capacity Charge is not applicable. It further observed that given the Capacity Charge is netted off against the Fixed Charge (and any potential Freight Specific Charge set to recover freight avoidable costs), this underlines that it is treated as a mark-up. DB Schenker also expressed this view.

Rail Freight Group's response sought clarification from ORR on the legal and regulatory basis for the Capacity Charge as applied to freight. It identified that it would not appear to be levied as a scarcity charge and questioned whether it could be considered under the requirement to have a performance scheme (similar points were also made by DB Schenker and Direct Rail Services). In line with other responses, it argued that it could be considered as a mark up, in which case it would be subject to an affordability test.

Cost recovery

Centro and PTC both questioned why Network Rail generates more income from the Capacity Charge than the income generated from the Variable Usage Charge. A similar point was raised by most freight operators and many freight operators reiterated this concern in their response to ORR's consultations on Schedules 4 and 8[14].

DB Schenker stressed the importance of this cost-recovery issue to freight operators, given the thin profit margins on which they operate. It noted ORR's proposal, outlined in our July 2012 consultation, to 'net off' Capacity Charge revenue from the calculation of freight avoidable costs (which would in turn be used to determine a Freight Specific Charge). DB Schenker noted, however, that any freight specific charge would only be imposed on those market segments which, as determined by ORR, could afford it. It questioned how cost recovery would be dealt with for those market segments that were determined not to be able to bear a freight specific charge.

Freightliner stated that the Capacity Charge has over-recovered from freight operators in an additional way, since the baseline of activity against which the Capacity Charge is set does not take account of the reduction in freight miles achieved over recent years (as a result of increased efficiency delivered through longer and heavier trains). Freightliner argued that this over-recovery from freight operators effectively subsidises the impact of increased passenger miles, where the Capacity Charge is netted off from the Fixed Charge.

[13] Under the terms of Article 8/1 of the Directive.
[14] http://www.rail-reg.gov.uk/pr13/PDF/sch-4-8-consultation-2012.pdf.

Freight efficiency

Responses from the freight industry highlighted the issue of freight's increasing efficiency in relation to the charge. Rail Freight Group demonstrated how freight has become more efficient since the introduction of the Capacity Charge, noting that these efficiency gains have not been reflected in the level of the charge.

GB Railfreight referred to a statement in our July 2012 consultation document "under the current structure, operators and funders benefit from cost savings if a service is withdrawn, in the same way that they pay more when a service is added". It considered that not only does this seem to be a perverse incentive, but also if taken literally, questioned whether freight should be entitled to ten years of Capacity Charge reductions (as a result of running fewer trains).

Furthermore, GB Railfreight agreed with this view and argued that other freight operators are being penalised for more frequent passenger services on the network. Direct Rail Services questioned whether the improved efficiency would be taken into consideration in the recalibration of the charge (and also questioned why the Capacity Charge has not been reviewed in over a decade). DB Schenker referred to paragraph 3(2) (sic) of Schedule 3 to the Regulations, which states that *"the charging system shall respect the productivity increases achieved by applicants"* and stated that it would be keen to understand how any CP5 Capacity Charge for freight reflects the productivity increases achieved by freight operators.

Simplicity of charging arrangements for freight

DB Schenker stated that it desires a simple charging framework. Therefore, Network Rail and ORR shouldn't look at each aspect of this framework separately, but should assess the implications as a whole. This sentiment was echoed by a number of freight stakeholders.

Overall impact of changes to the charging structure

Respondents from the freight sector stressed that the overall impact of changes to the entire charging structure should be considered, rather than consideration of each charge individually.

GB Railfreight emphasised the high level of uncertainty, complexity and financial burden being added to the industry as a result of multiple changes to different charges. Freightliner echoed this view and stated that the compound effect of all such changes leads to charging uncertainty for freight customers, also highlighting that the charging structure is considerably more complex than road charging. Rail Freight Group stated that the combined charges must be affordable and not have a negative impact on the freight industry.

Infrastructure improvements

Centro's response referred to the many infrastructure improvements since the introduction of the Capacity Charge, and argued that the Capacity Charge does not recognise the impact of these. PTC furthered this argument and requested that the proposed changes do not act to discourage Local Authorities from developing services, by increasing the costs and making service enhancements unaffordable.

Moreover, the Welsh Government stated that it does not want to find itself in a position where it is funding infrastructure enhancements, but is also exposed to an increasing Capacity Charge as a result of more traffic on the network. It referred to confirmation from Network Rail that this will not occur, as any such enhancements tend to increase capacity while reducing congestion, which would result in a reduction in the charge. It also requested consideration of the migration from charges based on service group to service code to ensure a balanced and proportionate distribution between Wales and Borders franchise services.

Suggested alternatives to the Capacity Charge

Freightliner expressed concerns relating to a lack of information regarding the baseline, above which trains are considered to be incremental. It suggested that the new baseline used for the recalibration of the Capacity Charge should be the same as that used for assessing CP5 network costs, as the cost of additional traffic is already included in charges levied during CP3 and CP4. Additionally, it considered that there should be a direct link between the recalibration of Schedule 8 and the Capacity Charge due to the strong connection between the two. It suggested that one way to do this would be to incorporate the Capacity Charge into the Schedule 8 benchmark, which would have the added benefit of strengthening incentives for train operators and Network Rail.

Rail Freight Group suggested that the Capacity Charge should be as low as possible due to most rail freight sectors being highly elastic, and therefore increases in charges could result in a traffic reversion to road. TfL echoed this view that the overall charge shouldn't increase significantly as this will deter the provision of additional services. Rail Freight Group also suggested that the Capacity Charge should be spread equally over the new services, so the additional services will be paying less than the marginal rate. This would mean that Network Rail could recover the appropriate amount and brings to an end the issue of freight over recovery.

APPENDIX 3: DRAFT PRICELISTS

Draft pricelists for the Capacity Charge are set out in the table below. These are shown in the final two columns of the table. For purposes of comparison, the third and fourth columns show Capacity Charge tariffs on the basis of current (i.e. CP4) Schedule 8 payment rates – these columns show what the results of Arup's recalibration work would be if Schedule 8 payment rates were to remain constant (in real terms) in CP5. All figures are presented in 2012-13 prices. **The freight discount in the table is applied at a rate of 25%,** as per our conclusion above.

These tariffs are based on the technical work undertaken by Arup. The industry has engaged constructively in this work – particularly through formal consultation processes and the Capacity Charge working group – and this engagement has helped inform Arup's calculations and conclusions.

We would emphasise that the pricelists are in **draft** form. The pricelists constitute Network Rail's early proposal to ORR on the basis of the technical work undertaken by Arup. A full record of the methodology used to derive these tariffs is contained in Arup's interim report, which is being published alongside this document.

We would emphasise that any decision on Capacity Charge tariffs and policy for CP5 is ultimately a matter for ORR.

By means of this document, we have made our draft pricelists available to the industry at a significantly earlier stage in the current periodic review process compared to previous price controls. We have done this to allow stakeholders sufficient time to challenge and comment on the proposals. **We would invite the industry to highlight any perceived issues or anomalies in the pricelists presented in this document.** Contact details are contained in the 'next steps' section in the introductory chapter.

For a small number of service codes – particularly ones that were not defined in the March 2012 timetable – the Capacity Charge tariff has not been finalised by Arup. These are indicated by an asterix in the table. We will provide an updated set of tariffs including these service codes as soon as practically possible, and in any case by May 2013.

Furthermore, certain service codes only operate services at the weekend. Further consideration will need to be given as to how to apply a tariff to these services.

Schedule 8 payment rates for CP5

Capacity Charge tariffs are set at Network Rail's marginal Schedule 8 liability as a result of accommodating incremental traffic on the network. As such, central determinants of Capacity Charge tariffs are Schedule 8 payment rates.

At the time of publishing this Capacity Charge draft pricelists, Schedule 8 payment rates for CP5 have not been finalised. In particular, the following activities are ongoing:

- Finalisation of 'delay multipliers' for purposes of setting 'default' rates – A recalibration exercise to set 'default' Schedule 8 rates for CP5 is currently underway. This is being led by Halcrow. With some possible exceptions, ORR considers that it is appropriate to set 'default' Schedule 8 payment rates on

the basis of values of 'delay multipliers' and 'Generalised Journey Time elasticities' provided in the Passenger Demand Forecasting Handbook (PDFH). The values in the PDFH are currently being reviewed by the Institute of Transport Studies (ITS) at the University of Leeds. Some figures – notably delay multipliers for commuting flows – are continuing to be evaluated, and cannot therefore be incorporated with certainty into Schedule 8 payment rates and Capacity Charge tariffs. A question also exists as to whether the delay multipliers adopted in the PDFH – even when they are finalised – will provide an appropriate basis for Schedule 8 rates. ORR and Network Rail will be in touch separately to gather industry views on this issue in April or May 2013.

- Local revisions to Schedule 8 payment rates – The exercise to establish 'default' Schedule 8 payment rates is likely to be supplemented by a process through which TOCs and Network Rail Routes can agree local revisions to payment rates which more accurately reflect revenue impacts of performance where it is believed that the 'default' Schedule 8 rates do not provide an accurate view of the revenue effects of performance. We expect a 'window' of opportunity to agree any local revisions to take place during the spring, and these will be tied down by August.

Whilst these issues have not been concluded upon, we believe that it is appropriate to share pricelists on the basis of the most recent indications of where payment rates could fall. As such, we have provided draft payment rates on the basis of the delay multipliers as proposed by ITS as of end March 2013. These are set out in the table below[15].

Delay multipliers				
Flow type	**Suburban**		**Inter-urban**	
	Commuting	**Non-commuting**	**Commuting**	**Non-commuting**
London	3.0	2.3	3.9	3.0
South-East	3.0	2.3	3.9	3.4
Outside SE	3.0	2.3	3.9	3.4
Airports	6.0	6.0	6.0	6.0

We believe that these provide likely 'upper bounds' for final delay multipliers, and therefore Schedule 8 payment rates and Capacity Charge tariffs. In particular, the following delay multipliers are likely to be revised downwards as part of future iterations of the PDFH:

- London and South-East commuting suburban flows; and
- London commuting inter-urban flows.

Moreover, as noted above, it may be appropriate to deviate from the PDFH in some instances, where TOCs and Network Rail do not consider that the PDFH parameters reflect local revenue impacts.

We expect that Schedule 8 payment rates will be finalised by August 2013, and we will make the associated Capacity Charge tariffs available shortly afterwards.

[15] It should be noted that Schedule 8 payment rates for the Nexus PG01service group have not been provided. We have therefore assumed that this will remain constant in real terms in CP5.

Passenger operator tariff
£ per train mile

2012-13 prices		CP5 tariffs based on CP4 Schedule 8 payment rates		Draft pricelist CP5 tariffs based on possible CP5 Schedule 8 payment rates	
Service code	Service Group	CP5 weekday tariff	CP5 weekend tariff	CP5 weekday tariff	CP5 weekend tariff
11792920	ED01	£ 0.0507	£ 0.0339	£ 0.1137	£ 0.0761
11798001	PG01	£ 0.1817	£ 0.1217	£ 0.1844	£ 0.1236
11802820	ED07	£ 0.0524	£ 0.0351	£ 0.1110	£ 0.0743
11803920	ED07	£ 0.0566	£ 0.0379	£ 0.1297	£ 0.0869
11804920	ED07	£ 0.0622	£ 0.0417	£ 0.1151	£ 0.0771
11807820	ED06	£ 0.1539	£ 0.1031	£ 0.2852	£ 0.1911
11808920	ED06	£ 0.1057	£ 0.0708	£ 0.1877	£ 0.1258
11810920	ED05	£ 0.4192	£ 0.2809	£ 0.6953	£ 0.4658
11816820	ED06	£ 0.1039	£ 0.0696	£ 0.1750	£ 0.1172
11817020	EA02	£ 0.1948	£ 0.1305	£ 0.4257	£ 0.2852
11818620	ED05	£ 0.1053	£ 0.0706	£ 0.1781	£ 0.1194
11819020	ED05	£ 0.0749	£ 0.0502	£ 0.1288	£ 0.0863
11820820	ED05	£ 0.0913	£ 0.0612	£ 0.1494	£ 0.1001
11821020	ED05	£ 0.0392	£ 0.0262	£ 0.0764	£ 0.0512
11822820	ED05	£ 0.0344	£ 0.0230	£ 0.0621	£ 0.0416
11824820	ED05	£ 0.6804	£ 0.4558	£ 1.0839	£ 0.7262
11825820	ED06	£ 0.0627	£ 0.0420	£ 0.1234	£ 0.0827
11830820	ED04	£ 0.0602	£ 0.0403	£ 0.1091	£ 0.0731
11830920	ED04	£ 0.1749	£ 0.1172	£ 0.3338	£ 0.2236
11835920	ED04	£ 0.1443	£ 0.0967	£ 0.3506	£ 0.2349
11837920	ED04	£ 0.3734	£ 0.2502	£ 0.7793	£ 0.5221
11838821	ED06	£ 0.0803	£ 0.0538	£ 0.1454	£ 0.0974
11841820	ED05	£ 0.0448	£ 0.0300	£ 0.0796	£ 0.0533
11868820	ED04	£ 0.0483	£ 0.0323	£ 0.1131	£ 0.0758
11868821	ED04	£ 0.0736	£ 0.0493	£ 0.1762	£ 0.1180
11870820	ED05	£ 0.1127	£ 0.0755	£ 0.1793	£ 0.1201
11871821	ED04	£ 0.0602	£ 0.0404	£ 0.1331	£ 0.0892
11874020	ED05	£ 0.0882	£ 0.0591	£ 0.2216	£ 0.1485
12220110	ED08	£ 0.0399	£ 0.0267	£ 0.0791	£ 0.0530
12220821	ED08	£ 0.1434	£ 0.0961	£ 0.3574	£ 0.2394
12223820	ED08	£ 0.0575	£ 0.0385	£ 0.1123	£ 0.0752
12224110	ED08	£ 0.0722	£ 0.0484	£ 0.1524	£ 0.1021
12224820	ED08	£ 0.1072	£ 0.0718	£ 0.2424	£ 0.1624
12225110	ED08	£ 0.0443	£ 0.0297	£ 0.0883	£ 0.0591
12225820	ED08	£ 0.0270	£ 0.0181	£ 0.0478	£ 0.0320
12226110	ED10	£ 0.2259	£ 0.1513	£ 0.5190	£ 0.3477
12226820	ED10	£ 0.1629	£ 0.1091	£ 0.3507	£ 0.2350
12228110	ED10	£ 0.2995	£ 0.2007	£ 0.6849	£ 0.4589
12228820	ED10	£ 0.2064	£ 0.1383	£ 0.4669	£ 0.3128
12229110	ED10	£ 0.2311	£ 0.1548	£ 0.5290	£ 0.3545
12229820	ED10	£ 0.1431	£ 0.0959	£ 0.3146	£ 0.2108
12230110	ED10	£ 0.1873	£ 0.1255	£ 0.4328	£ 0.2900
12231820	ED10	£ 0.5098	£ 0.3416	£ 1.1336	£ 0.7595
12232820	ED10	£ 0.4939	£ 0.3309	£ 1.0978	£ 0.7355

12233110	ED10	£ 0.2030	£ 0.1360	£ 0.4745	£ 0.3179
12233820	ED10	£ 0.3280	£ 0.2198	£ 0.7439	£ 0.4984
12236820	ED09	£ 0.1217	£ 0.0815	£ 0.2630	£ 0.1762
12240820	ED08	£ 0.0474	£ 0.0317	£ 0.0919	£ 0.0616
12242110	ED08	£ 0.0473	£ 0.0317	£ 0.0928	£ 0.0622
12246820	EA03	£ 0.2231	£ 0.1495	£ 0.5165	£ 0.3460
12247822	EA03	£ 0.1519	£ 0.1018	£ 0.3633	£ 0.2434
12248822	ED09	£ 0.1459	£ 0.0978	£ 0.3379	£ 0.2264
12249820	ED03	£ 0.1938	£ 0.1298	£ 0.4262	£ 0.2855
12254320	EJ01	£ 0.1080	£ 0.0724	£ 0.2235	£ 0.1497
12256320	EJ03	£ 0.3825	£ 0.2563	£ 0.7892	£ 0.5287
12257320	EJ01	£ 0.1377	£ 0.0923	£ 0.3125	£ 0.2094
12259320	EJ03	£ 1.6629	£ 1.1141	£ 3.2051	£ 2.1474
12263310	EJ03	£ 0.2230	£ 0.1494	£ 0.4700	£ 0.3149
12263810	EJ03	£ 0.5345	£ 0.3581	£ 0.8892	£ 0.5958
12271310	EJ03	£ 0.0975	£ 0.0653	£ 0.1486	£ 0.0996
12272320	EJ03	£ 0.1543	£ 0.1034	£ 0.3608	£ 0.2417
12272820	EJ03	£ 0.1413	£ 0.0947	£ 0.3306	£ 0.2215
12291820	ED09	£ 0.1360	£ 0.0911	£ 0.2937	£ 0.1968
12297820	ED09	£ 0.0809	£ 0.0542	£ 0.1772	£ 0.1187
12298820	ED09	£ 0.0591	£ 0.0396	£ 0.1313	£ 0.0879
12299820	ED09	£ 0.1492	£ 0.1000	£ 0.3099	£ 0.2076
12301012	HE01	£ 0.1071	£ 0.0718	£ 0.1204	£ 0.0807
12302012	HE01	£ 0.1044	£ 0.0700	£ 0.1174	£ 0.0786
12303012	HE01	£ 0.1503	£ 0.1007	£ 0.1690	£ 0.1132
12304212	HE01	£ 0.1025	£ 0.0687	£ 0.1158	£ 0.0776
12305012	HE02	£ 0.1017	£ 0.0681	£ 0.1375	£ 0.0921
12306212	HE02	£ 0.1006	£ 0.0674	£ 0.1353	£ 0.0907
12325021	EM01	£ 0.0901	£ 0.0604	£ 0.1465	£ 0.0982
12332320	EJ01	£ 0.1205	£ 0.0807	£ 0.2804	£ 0.1878
12342800	HL07	£ 0.0019	£ 0.0013	£ 0.0027	£ 0.0018
12349820	ED08	£ 0.0510	£ 0.0342	£ 0.0978	£ 0.0655
12355820	ED03	£ 0.0973	£ 0.0652	£ 0.2296	£ 0.1538
13560015	HA06	£ 0.1699	£ 0.1138	£ 0.3173	£ 0.2126
13561015	HA07	£ 0.0499	£ 0.0334	£ 0.1105	£ 0.0740
13562015	HA06	£ 0.2421	£ 0.1622	£ 0.4535	£ 0.3038
13563015	HA06	£ 0.1849	£ 0.1239	£ 0.3476	£ 0.2329
13564825	HA07	£ 0.1464	£ 0.0981	£ 0.3111	£ 0.2084
13565015	HA07	£ 0.1277	£ 0.0855	£ 0.2553	£ 0.1710
13566515	HA07	£ 0.1222	£ 0.0819	£ 0.2781	£ 0.1863
13567015	HA07	£ 0.1586	£ 0.1063	£ 0.3240	£ 0.2171
13568015	HA07	£ 0.1480	£ 0.0991	£ 0.2970	£ 0.1990
13569815	HA06	£ 0.1465	£ 0.0982	£ 0.2614	£ 0.1751
13571015	HA06	£ 0.1400	£ 0.0938	£ 0.2464	£ 0.1651
13572015	HA07	£ 0.0469	£ 0.0314	£ 0.0841	£ 0.0564
13573015	HA06	£ 0.1270	£ 0.0851	£ 0.2239	£ 0.1500
13574515	HA07	£ 0.0739	£ 0.0495	£ 0.1793	£ 0.1202
13575825	HA07	£ 0.1397	£ 0.0936	£ 0.3126	£ 0.2094
13577015	HA07	£ 0.0905	£ 0.0606	£ 0.1731	£ 0.1160
21151900	ED04	£ 0.0665	£ 0.0445	£ 0.1282	£ 0.0859
21700001	HB01	£ 1.9579	£ 1.3118	£ 3.4734	£ 2.3272
21701001	HB05	£ 1.2099	£ 0.8107	£ 2.2542	£ 1.5103
21702001	HB02	£ 2.2853	£ 1.5311	£ 3.9698	£ 2.6598
21703001	HB04	£ 2.7599	£ 1.8491	£ 4.6289	£ 3.1014
21713000	EG04	£ 2.4725	£ 1.6566	£ 4.7872	£ 3.2075
21714000	EG04	£ 0.8288	£ 0.5553	£ 1.5951	£ 1.0687
21715000	EG05	£ 1.5283	£ 1.0239	£ 3.1288	£ 2.0963
21716000	EG05	£ 2.2674	£ 1.5192	£ 4.5661	£ 3.0593

21717000	EG05	£ 3.1199	£ 2.0903	£ 5.6480	£ 3.7841
21730001	EA03	£ 0.2420	£ 0.1621	£ 0.5423	£ 0.3633
21731000	EA01	£ 0.9484	£ 0.6354	£ 1.8709	£ 1.2535
21732000	EA01	£ 0.3238	£ 0.2170	£ 0.7188	£ 0.4816
21733000	EA01	£ 0.2053	£ 0.1376	£ 0.4506	£ 0.3019
21734000	EA01	£ 0.9053	£ 0.6065	£ 1.8277	£ 1.2246
21737000	ED04	£ 0.2325	£ 0.1558	£ 0.5003	£ 0.3352
21750001	PF01	£ 2.0595	£ 1.3798	£ 3.5368	£ 2.3697
21755001	EC01	£ 2.0263	£ 1.3576	£ 3.5754	£ 2.3955
21756006	EC01	£ 2.1365	£ 1.4315	£ 3.6680	£ 2.4576
21770002	EB04	£ 0.8775	£ 0.5879	£ 1.6832	£ 1.1278
21781002	EB04	£ 0.7020	£ 0.4703	£ 1.2011	£ 0.8047
21791000	ED01	£ 0.2808	£ 0.1881	£ 0.5307	£ 0.3556
21793000	ED01	£ 0.0454	£ 0.0304	£ 0.0830	£ 0.0556
21794000	ED01	£ 0.5830	£ 0.3906	£ 1.0686	£ 0.7159
21796000	ED01	£ 0.2016	£ 0.1351	£ 0.3744	£ 0.2508
21800000	ED01	£ 0.0644	£ 0.0432	£ 0.1202	£ 0.0805
21801000	ED01	£ 0.0709	£ 0.0475	£ 0.1314	£ 0.0880
21805000	ED07	*	*	*	*
21806000	ED06	£ 0.7332	£ 0.4912	£ 1.3683	£ 0.9167
21826000	ED07	£ 0.0527	£ 0.0353	£ 0.1210	£ 0.0811
21845000	ED07	£ 0.5225	£ 0.3501	£ 1.0514	£ 0.7044
21853000	ED07	£ 0.0612	£ 0.0410	£ 0.1315	£ 0.0881
21865000	ED07	£ 0.2089	£ 0.1400	£ 0.3419	£ 0.2291
21869000	ED04	£ 0.0722	£ 0.0484	£ 0.1430	£ 0.0958
21891002	EB05	£ 0.1967	£ 0.1318	£ 0.1431	£ 0.0959
21893002	EB05	£ 0.1857	£ 0.1244	£ 0.1557	£ 0.1043
21894002	EB05	£ 0.2227	£ 0.1492	£ 0.2710	£ 0.1816
21895002	EB05	£ 0.0672	£ 0.0450	£ 0.0392	£ 0.0262
21896002	EB05	£ 0.1259	£ 0.0843	£ 0.0733	£ 0.0491
21897002	EB05	£ 0.2094	£ 0.1403	£ 0.1224	£ 0.0820
21899002	EB05	£ 0.2305	£ 0.1545	£ 0.4199	£ 0.2814
21910000	EB07	£ 0.1930	£ 0.1293	£ 0.5117	£ 0.3429
21911000	EB06	£ 0.2471	£ 0.1656	£ 0.7822	£ 0.5241
21912000	EB07	£ 0.1572	£ 0.1053	£ 0.4057	£ 0.2718
21913000	EB06	£ 0.2105	£ 0.1410	£ 0.6678	£ 0.4474
21915000	EB06	£ 0.2185	£ 0.1464	£ 0.6221	£ 0.4168
21920000	EB07	£ 0.2096	£ 0.1404	£ 0.6377	£ 0.4273
21921000	EK01	£ 0.0900	£ 0.0603	£ 0.2694	£ 0.1805
21926001	EB03	£ 0.4528	£ 0.3034	£ 1.0234	£ 0.6857
21936004	HT01	£ 0.2569	£ 0.1721	£ 0.5843	£ 0.3915
21939001	EB03	£ 0.6131	£ 0.4108	£ 1.0692	£ 0.7163
21940001	EB01	£ 1.1993	£ 0.8036	£ 2.0674	£ 1.3852
21943001	EB02	£ 0.6882	£ 0.4611	£ 1.1394	£ 0.7634
22100001	HF01	£ 2.5340	£ 1.6978	£ 4.9860	£ 3.3406
22104001	HF02	£ 1.9588	£ 1.3124	£ 4.1036	£ 2.7494
22108001	HF03	£ 2.1877	£ 1.4658	£ 4.4918	£ 3.0095
22109001	HF04	£ 2.4033	£ 1.6102	£ 4.8886	£ 3.2754
22112001	HF06	£ 1.4312	£ 0.9589	£ 2.9579	£ 1.9818
22112005	HF06	£ 0.6756	£ 0.4527	£ 1.4264	£ 0.9557
22150000	EM04	£ 1.6674	£ 1.1171	£ 2.2962	£ 1.5385
22152000	EM05	£ 1.5818	£ 1.0598	£ 2.2195	£ 1.4870
22153000	EM04	£ 1.9217	£ 1.2876	£ 2.6242	£ 1.7582
22154000	EM05	£ 1.8478	£ 1.2380	£ 2.5447	£ 1.7049
22156000	EM05	£ 1.7515	£ 1.1735	£ 2.5963	£ 1.7395
22180008	EH01	£ 0.8063	£ 0.5402	£ 1.5161	£ 1.0158
22180009	EH01	£ 1.2641	£ 0.8469	£ 2.3415	£ 1.5688
22180010	EH01	£ 0.8328	£ 0.5580	£ 1.6026	£ 1.0738

22180011	EH01	£ 0.9754	£ 0.6535	£ 1.7849	£ 1.1959
22180012	EH01	£ 0.6114	£ 0.4096	£ 1.1886	£ 0.7964
22180013	EH01	£ 0.4869	£ 0.3262	£ 1.0416	£ 0.6979
22180014	EH01	£ 0.6122	£ 0.4102	£ 1.2453	£ 0.8344
22185002	EH01	£ 0.3293	£ 0.2206	£ 0.6370	£ 0.4268
22185003	EH02	£ 0.2949	£ 0.1976	£ 0.5925	£ 0.3969
22204000	EK01	£ 0.1064	£ 0.0713	£ 0.3683	£ 0.2468
22209000	EJ05	£ 2.8736	£ 1.9253	£ 5.8925	£ 3.9480
22212000	EJ06	£ 0.0185	£ 0.0124	£ 0.0283	£ 0.0190
22213000	EJ06	£ 0.1133	£ 0.0759	£ 0.1737	£ 0.1164
22214000	EK01	£ 0.1615	£ 0.1082	£ 0.5207	£ 0.3489
22215003	EK03	£ 0.2693	£ 0.1805	£ 0.6001	£ 0.4021
22216000	EK02	£ 0.9325	£ 0.6247	£ 1.9453	£ 1.3034
22218000	EK03	£ 0.0499	£ 0.0334	£ 0.2062	£ 0.1382
22254000	EJ01	£ 0.0819	£ 0.0549	£ 0.1816	£ 0.1217
22257000	EJ01	£ 0.1325	£ 0.0888	£ 0.3484	£ 0.2334
22259000	EJ03	£ 1.0534	£ 0.7058	£ 1.9495	£ 1.3061
22260000	EH02	£ 0.4842	£ 0.3244	£ 0.9099	£ 0.6096
22261000	HL04	£ 0.1445	£ 0.0968	£ 0.3401	£ 0.2278
22263000	EJ03	£ 0.1055	£ 0.0707	£ 0.2340	£ 0.1568
22266000	EJ04	£ 0.2100	£ 0.1407	£ 0.4975	£ 0.3333
22268000	EH02	£ 0.4088	£ 0.2739	£ 0.7668	£ 0.5137
22269000	EM03	£ 0.4102	£ 0.2748	£ 0.7051	£ 0.4724
22272000	EJ03	£ 0.1324	£ 0.0887	£ 0.3148	£ 0.2109
22275000	EM01	£ 0.5682	£ 0.3807	£ 0.8018	£ 0.5372
22277000	EM01	£ 0.5336	£ 0.3575	£ 0.7303	£ 0.4893
22291000	ED09	£ 0.1020	£ 0.0683	£ 0.2305	£ 0.1544
22300000	EJ04	£ 1.3179	£ 0.8830	£ 2.7257	£ 1.8262
22304003	HE01	£ 0.0991	£ 0.0664	£ 0.1113	£ 0.0746
22306003	HE02	£ 0.1125	£ 0.0754	£ 0.1524	£ 0.1021
22320000	EM02	£ 0.1492	£ 0.0999	£ 0.3389	£ 0.2270
22321000	EM01	£ 0.7375	£ 0.4941	£ 0.9664	£ 0.6475
22323000	EM01	£ 0.5867	£ 0.3931	£ 0.8079	£ 0.5413
22328000	EJ02	£ 0.0530	£ 0.0355	£ 0.1656	£ 0.1110
22329000	EJ03	£ 0.2423	£ 0.1624	£ 0.5194	£ 0.3480
22330000	EJ02	£ 1.7558	£ 1.1764	£ 3.6134	£ 2.4210
22332000	EJ01	£ 0.1190	£ 0.0797	£ 0.2698	£ 0.1808
22334000	HL04	£ 0.1445	£ 0.0968	£ 0.3433	£ 0.2300
22335000	HL04	£ 0.0556	£ 0.0373	£ 0.1945	£ 0.1303
22338000	HL07	£ 0.0117	£ 0.0079	£ 0.0235	£ 0.0158
22340000	HL08	£ 0.1238	£ 0.0830	£ 0.3364	£ 0.2254
22342000	HL07	£ 0.0037	£ 0.0025	£ 0.0056	£ 0.0037
22345000	HL08	£ 0.0892	£ 0.0598	£ 0.2305	£ 0.1544
22350000	ED02	£ 0.0559	£ 0.0375	£ 0.1298	£ 0.0870
22351000	ED02	£ 0.0500	£ 0.0335	£ 0.1169	£ 0.0783
22352000	ED02	£ 0.1131	£ 0.0758	£ 0.2576	£ 0.1726
22354000	ED02	£ 0.0565	£ 0.0379	£ 0.1254	£ 0.0840
22356000	EA03	£ 0.2449	£ 0.1641	£ 0.6407	£ 0.4293
22358000	ED02	£ 0.0301	£ 0.0202	£ 0.0683	£ 0.0457
22709000	EG06	£ 0.3459	£ 0.2317	£ 0.6975	£ 0.4673
22710000	EG01	£ 1.5348	£ 1.0283	£ 2.7738	£ 1.8584
22710001	EG01	£ 1.4922	£ 0.9998	£ 2.4154	£ 1.6183
22710002	EG01	£ 1.6798	£ 1.1255	£ 2.9794	£ 1.9962
22711000	EG02	£ 1.9255	£ 1.2901	£ 3.3660	£ 2.2552
22712000	EG03	£ 1.4621	£ 0.9796	£ 2.0571	£ 1.3783
22812000	EM01	£ 0.3418	£ 0.2290	£ 0.5512	£ 0.3693
22832000	EM02	£ 0.0451	£ 0.0302	£ 0.0896	£ 0.0600
22836000	EM02	£ 0.0687	£ 0.0461	£ 0.1216	£ 0.0815

23540003	HA01	£ 0.1416	£ 0.0949	£ 0.3196	£ 0.2142
23541003	HA01	£ 0.2158	£ 0.1446	£ 0.4778	£ 0.3201
23542003	HA04	£ 0.0229	£ 0.0153	£ 0.0699	£ 0.0468
23543003	HA04	£ 0.0307	£ 0.0206	£ 0.0938	£ 0.0629
23545003	HA04	£ 0.0332	£ 0.0222	£ 0.0856	£ 0.0574
23547003	HA04	£ 0.0956	£ 0.0640	£ 0.2338	£ 0.1567
23548003	HA01	£ 0.2241	£ 0.1502	£ 0.4950	£ 0.3316
23549003	HA01	£ 0.1897	£ 0.1271	£ 0.4232	£ 0.2836
23551003	HA11	£ 0.3692	£ 0.2474	£ 0.7288	£ 0.4883
23552003	HA11	£ 0.1970	£ 0.1320	£ 0.4321	£ 0.2895
23553003	HA11	£ 0.6629	£ 0.4441	£ 1.3433	£ 0.9000
23554003	HA11	£ 0.0930	£ 0.0623	£ 0.2347	£ 0.1572
23555003	HA11	£ 0.0416	£ 0.0279	£ 0.1286	£ 0.0861
23564903	HA07	£ 0.1358	£ 0.0910	£ 0.2936	£ 0.1967
23575903	HA07	£ 0.1431	£ 0.0959	£ 0.3249	£ 0.2177
23576003	HA02	£ 0.2320	£ 0.1555	£ 0.4877	£ 0.3268
23578903	HA07	£ 0.0824	£ 0.0552	£ 0.1858	£ 0.1245
23579003	HA03	£ 0.1041	£ 0.0697	£ 0.1895	£ 0.1270
23584003	HA02	£ 0.3526	£ 0.2362	£ 0.6602	£ 0.4423
23586003	HA02	£ 0.2911	£ 0.1950	£ 0.6035	£ 0.4043
23587003	HA02	£ 0.2701	£ 0.1810	£ 0.5623	£ 0.3767
23587103	HA02	£ 0.2514	£ 0.1684	£ 0.5252	£ 0.3519
24602000	HU04	£ 1.4067	£ 0.9425	£ 3.4677	£ 2.3233
24602004	HU01	£ 0.3164	£ 0.2120	£ 0.5914	£ 0.3962
24603006	HW01	£ 0.1606	£ 0.1076	£ 0.4297	£ 0.2879
24604000	HU04	£ 0.8453	£ 0.5664	£ 2.2813	£ 1.5285
24604004	HU01	£ 0.2138	£ 0.1433	£ 0.5287	£ 0.3543
24605000	HU04	£ 1.0412	£ 0.6976	£ 2.8166	£ 1.8871
24605004	HU01	£ 0.2635	£ 0.1765	£ 0.7355	£ 0.4928
24606000	HU04	£ 0.7929	£ 0.5312	£ 1.9171	£ 1.2845
24606004	HU01	£ 0.1709	£ 0.1145	£ 0.3415	£ 0.2288
24607006	HU03	£ 0.0588	£ 0.0394	£ 0.0860	£ 0.0576
24608006	HU03	£ 0.0452	£ 0.0303	£ 0.0963	£ 0.0645
24610000	HW05	£ 1.7334	£ 1.1614	£ 4.0883	£ 2.7391
24610004	HW04	£ 0.8330	£ 0.5581	£ 1.5703	£ 1.0521
24614006	HW01	£ 0.1599	£ 0.1071	£ 0.4274	£ 0.2864
24615006	HW01	£ 0.2381	£ 0.1595	£ 0.6266	£ 0.4198
24617000	HW07	£ 3.4492	£ 2.3109	£ 8.4173	£ 5.6396
24617003	HW07	£ 2.1484	£ 1.4394	£ 4.2025	£ 2.8156
24618000	HW02	£ 1.9653	£ 1.3168	£ 5.6108	£ 3.7593
24618004	HW03	£ 0.8509	£ 0.5701	£ 1.7855	£ 1.1963
24619004	HW01	£ 0.4258	£ 0.2853	£ 0.8764	£ 0.5872
24620104	HY08	£ 0.5733	£ 0.3841	£ 1.3003	£ 0.8712
24620204	HY08	£ 0.5727	£ 0.3837	£ 1.2751	£ 0.8543
24621104	HY07	£ 0.6664	£ 0.4465	£ 1.3858	£ 0.9285
24621204	HY07	£ 0.6857	£ 0.4594	£ 1.4284	£ 0.9570
24622004	HW01	£ 0.6571	£ 0.4403	£ 1.3113	£ 0.8786
24623104	HY03	£ 0.6563	£ 0.4397	£ 1.4444	£ 0.9678
24623404	HY02	£ 0.2943	£ 0.1972	£ 0.4586	£ 0.3073
24629104	HY08	£ 0.3065	£ 0.2053	£ 0.8244	£ 0.5523
24629204	HY08	£ 0.9548	£ 0.6397	£ 2.0908	£ 1.4009
24629304	HY08	£ 0.5214	£ 0.3494	£ 1.4688	£ 0.9841
24631104	HY02	£ 0.2699	£ 0.1808	£ 0.6043	£ 0.4048
24631204	HY02	£ 0.6719	£ 0.4502	£ 1.4084	£ 0.9436
24632104	HY04	£ 0.8218	£ 0.5506	£ 1.6916	£ 1.1334
24632204	HY04	£ 1.4346	£ 0.9612	£ 3.0430	£ 2.0388
24647000	HU07	£ 0.1927	£ 0.1291	£ 0.8875	£ 0.5946
24647001	HU07	£ 0.3179	£ 0.2130	£ 1.4022	£ 0.9395

24647004	HU06	£ 0.2492	£ 0.1670	£ 1.3356	£ 0.8948
24647005	HU06	£ 0.3184	£ 0.2134	£ 1.7210	£ 1.1531
24648000	HU07	£ 0.3742	£ 0.2507	£ 1.2965	£ 0.8687
24648001	HU07	£ 0.2472	£ 0.1656	£ 0.7279	£ 0.4877
24648004	HU06	£ 0.2480	£ 0.1662	£ 1.0480	£ 0.7022
24648005	HU06	£ 0.0981	£ 0.0657	£ 0.4000	£ 0.2680
24650000	HU05	£ 2.1337	£ 1.4296	£ 4.3629	£ 2.9232
24650005	HU02	£ 0.4416	£ 0.2958	£ 0.7048	£ 0.4722
24652000	HU05	£ 1.5690	£ 1.0513	£ 3.1296	£ 2.0968
24652005	HU02	£ 0.4484	£ 0.3004	£ 0.7597	£ 0.5090
24653000	HU05	£ 2.8110	£ 1.8834	£ 5.8181	£ 3.8981
24653005	HU02	£ 0.5678	£ 0.3805	£ 0.8969	£ 0.6009
24655000	HU05	£ 3.2020	£ 2.1453	£ 7.4058	£ 4.9619
24655005	HU02	£ 0.6209	£ 0.4160	£ 1.0874	£ 0.7285
24656000	HU05	£ 1.9883	£ 1.3321	£ 3.6443	£ 2.4417
24656005	HU02	£ 0.6802	£ 0.4557	£ 1.0303	£ 0.6903
24657000	HU05	£ 1.9715	£ 1.3209	£ 4.1075	£ 2.7520
24657005	HU02	£ 0.4782	£ 0.3204	£ 0.7933	£ 0.5315
24658000	HU05	£ 1.2023	£ 0.8055	£ 2.4941	£ 1.6710
24658005	HU02	£ 0.3183	£ 0.2133	£ 0.5897	£ 0.3951
24659000	HU05	£ 1.8343	£ 1.2290	£ 3.6745	£ 2.4619
24659005	HU02	£ 0.5386	£ 0.3609	£ 0.8523	£ 0.5710
24661000	HW05	£ 2.4035	£ 1.6104	£ 5.9646	£ 3.9963
24661005	HW04	£ 0.9897	£ 0.6631	£ 1.8416	£ 1.2339
24663000	HW02	£ 2.8128	£ 1.8846	£ 7.7814	£ 5.2135
24663004	HW03	£ 1.7415	£ 1.1668	£ 3.4807	£ 2.3321
24664000	HW02	£ 1.7567	£ 1.1770	£ 4.7253	£ 3.1659
24664004	HW03	£ 1.4481	£ 0.9702	£ 2.8064	£ 1.8803
24665000	HW02	£ 1.6444	£ 1.1018	£ 4.8712	£ 3.2637
24665004	HW03	£ 0.8338	£ 0.5586	£ 1.8267	£ 1.2239
24666000	HW02	£ 2.2115	£ 1.4817	£ 6.2423	£ 4.1823
24666004	HW03	£ 1.1341	£ 0.7599	£ 2.2601	£ 1.5143
24667000	HW02	£ 2.6069	£ 1.7466	£ 7.4178	£ 4.9699
24667004	HW03	£ 1.1316	£ 0.7582	£ 2.3412	£ 1.5686
24668000	HW05	£ 1.4135	£ 0.9470	£ 2.9627	£ 1.9850
24668005	HW04	£ 0.4364	£ 0.2924	£ 0.7518	£ 0.5037
24669000	HW05	£ 1.1165	£ 0.7481	£ 2.3907	£ 1.6017
24669005	HW04	£ 0.3397	£ 0.2276	£ 0.4908	£ 0.3288
24671105	HY05	£ 0.5304	£ 0.3554	£ 0.8212	£ 0.5502
24671205	HY05	£ 0.4472	£ 0.2996	£ 0.6946	£ 0.4654
24671305	HY05	£ 0.7362	£ 0.4933	£ 1.1565	£ 0.7748
24671405	HY05	£ 0.8416	£ 0.5639	£ 1.4070	£ 0.9427
24671505	HY05	£ 0.9991	£ 0.6694	£ 1.6929	£ 1.1343
24671605	HY05	£ 0.7743	£ 0.5188	£ 1.3119	£ 0.8789
24672104	HY06	£ 0.4758	£ 0.3188	£ 0.7822	£ 0.5241
24672204	HY06	£ 0.6130	£ 0.4107	£ 1.1146	£ 0.7467
24672404	HY06	£ 0.2948	£ 0.1975	£ 0.5303	£ 0.3553
24673105	HY01	£ 0.7969	£ 0.5340	£ 1.3583	£ 0.9100
24673205	HY01	£ 1.1390	£ 0.7631	£ 2.0341	£ 1.3629
24673305	HY01	£ 0.7600	£ 0.5092	£ 1.2843	£ 0.8605
24673405	HY01	£ 1.0031	£ 0.6721	£ 1.7299	£ 1.1590
24673505	HY01	£ 0.7307	£ 0.4896	£ 1.2694	£ 0.8505
24673605	HY01	£ 1.3012	£ 0.8718	£ 2.6127	£ 1.7505
24673705	HY01	£ 0.6861	£ 0.4597	£ 1.1467	£ 0.7683
24674005	HW06	£ 2.9676	£ 1.9883	£ 6.0655	£ 4.0639
24683000	HW05	£ 1.9886	£ 1.3324	£ 4.4404	£ 2.9751
24683005	HW04	£ 0.8847	£ 0.5927	£ 1.6350	£ 1.0955
24684000	HW05	£ 1.0765	£ 0.7212	£ 2.4813	£ 1.6625

24684005	HW04	£ 0.5644	£ 0.3782	£ 1.0083	£ 0.6756
24685000	HW05	£ 1.3180	£ 0.8831	£ 3.0027	£ 2.0118
24685005	HW04	£ 0.9369	£ 0.6277	£ 1.7914	£ 1.2003
24686000	HW05	£ 0.6588	£ 0.4414	£ 1.1322	£ 0.7585
24686005	HW04	£ 0.1251	£ 0.0838	£ 0.1566	£ 0.1049
24687000	HW05	£ 2.4509	£ 1.6421	£ 5.7795	£ 3.8722
24687005	HW04	£ 1.0943	£ 0.7332	£ 2.0541	£ 1.3763
24688000	HW05	£ 1.0838	£ 0.7261	£ 2.4102	£ 1.6149
24688005	HW04	£ 0.5545	£ 0.3715	£ 1.0027	£ 0.6718
24936004	HT01	£ 0.2814	£ 0.1885	£ 0.6530	£ 0.4375
25210004	HO01	£ 0.0416	£ 0.0279	£ 0.1105	£ 0.0740
25211004	HO03	£ 0.1576	£ 0.1056	£ 0.4517	£ 0.3026
25267000	HL06	£ 0.0377	£ 0.0252	£ 0.1201	£ 0.0805
25370002	EF01	£ 2.2869	£ 1.5322	£ 3.5471	£ 2.3765
25375002	EF02	£ 1.8355	£ 1.2298	£ 2.8154	£ 1.8863
25390003	EF03	£ 2.3876	£ 1.5997	£ 3.8316	£ 2.5672
25392003	EF03	£ 1.8011	£ 1.2068	£ 3.0337	£ 2.0326
25396002	EF04	£ 0.2982	£ 0.1998	£ 0.5085	£ 0.3407
25397003	EF04	£ 1.1290	£ 0.7564	£ 1.9657	£ 1.3170
25429000	HL03	£ 0.4459	£ 0.2988	£ 0.6867	£ 0.4601
25430000	HL05	£ 0.0580	£ 0.0388	£ 0.1142	£ 0.0765
25431000	HL02	£ 0.3011	£ 0.2018	£ 0.4574	£ 0.3065
25432000	HL02	£ 0.2066	£ 0.1384	£ 0.3523	£ 0.2360
25434000	HL06	£ 0.1612	£ 0.1080	£ 0.3402	£ 0.2279
25435000	HL02	£ 0.0722	£ 0.0483	£ 0.1256	£ 0.0841
25437000	HL02	£ 0.0587	£ 0.0394	£ 0.1265	£ 0.0847
25438000	HL02	£ 0.3009	£ 0.2016	£ 0.4459	£ 0.2988
25439000	HL05	£ 0.0330	£ 0.0221	£ 0.0564	£ 0.0378
25440000	HL05	£ 0.0405	£ 0.0272	£ 0.0800	£ 0.0536
25441000	HL05	£ 0.0310	£ 0.0207	£ 0.0611	£ 0.0409
25442000	HL05	£ 0.0328	£ 0.0220	£ 0.0637	£ 0.0426
25443000	HL05	£ 0.0308	£ 0.0207	£ 0.0595	£ 0.0399
25444001	HL03	£ 0.9512	£ 0.6373	£ 1.4623	£ 0.9797
25445000	HL05	£ 0.0402	£ 0.0269	£ 0.0790	£ 0.0529
25446000	HL05	£ 0.0326	£ 0.0219	£ 0.0620	£ 0.0416
25447000	HL05	£ 0.0371	£ 0.0248	£ 0.0736	£ 0.0493
25448000	HL05	£ 0.0306	£ 0.0205	£ 0.0599	£ 0.0402
25460001	EF10	£ 0.5087	£ 0.3408	£ 0.8910	£ 0.5970
25462001	EF11	£ 0.2614	£ 0.1751	£ 0.5049	£ 0.3383
25466001	EF10	£ 0.1056	£ 0.0707	£ 0.2570	£ 0.1722
25467001	EF10	£ 0.5797	£ 0.3884	£ 1.0248	£ 0.6866
25470001	EF13	£ 0.4558	£ 0.3054	£ 0.7701	£ 0.5159
25471001	EF13	£ 0.3583	£ 0.2400	£ 0.6225	£ 0.4171
25473001	EF12	£ 0.0652	£ 0.0437	£ 0.1414	£ 0.0948
25474001	EF12	£ 0.2669	£ 0.1788	£ 0.4997	£ 0.3348
25476001	EF12	£ 0.0509	£ 0.0341	£ 0.1183	£ 0.0792
25477001	EF12	£ 0.0217	£ 0.0145	£ 0.0511	£ 0.0343
25478001	EF12	£ 0.0641	£ 0.0429	£ 0.1590	£ 0.1065
25479001	EF12	£ 0.0733	£ 0.0491	£ 0.1773	£ 0.1188
25480001	EF11	£ 0.0970	£ 0.0650	£ 0.1897	£ 0.1271
25482001	EF11	£ 0.1990	£ 0.1333	£ 0.3951	£ 0.2647
25484001	EF10	£ 0.2749	£ 0.1842	£ 0.5246	£ 0.3515
25485001	EF13	£ 0.6691	£ 0.4483	£ 1.1256	£ 0.7541
25486001	EF10	£ 0.2681	£ 0.1797	£ 0.5417	£ 0.3629
25488001	EF10	£ 0.3524	£ 0.2361	£ 0.6775	£ 0.4539
25503003	EE02	£ 2.6968	£ 1.8068	£ 4.1516	£ 2.7815
25506005	EF05	£ 2.7571	£ 1.8473	£ 4.4803	£ 3.0018
25507005	EF05	£ 2.4722	£ 1.6564	£ 3.9897	£ 2.6731

25508006	EF06	£ 1.9023	£ 1.2745	£ 3.1138	£ 2.0862
25509007	EF08	£ 0.1075	£ 0.0720	£ 0.1834	£ 0.1229
25510006	EF08	£ 0.0932	£ 0.0625	£ 0.1506	£ 0.1009
25511007	EF08	£ 0.2519	£ 0.1688	£ 0.4351	£ 0.2915
25513005	EF07	£ 1.3328	£ 0.8930	£ 2.2331	£ 1.4961
25514005	EF07	£ 1.7978	£ 1.2045	£ 3.0627	£ 2.0520
25516005	EF06	£ 2.8374	£ 1.9010	£ 4.6547	£ 3.1186
25517005	EF05	£ 1.8892	£ 1.2658	£ 3.0981	£ 2.0757
25518007	EF07	£ 0.3317	£ 0.2222	£ 0.5928	£ 0.3972
25519007	EF07	£ 0.3688	£ 0.2471	£ 0.6719	£ 0.4501
25521007	EF09	£ 0.3731	£ 0.2500	£ 0.8029	£ 0.5379
25522007	EF09	£ 0.1638	£ 0.1097	£ 0.3017	£ 0.2022
25524005	EF07	£ 0.6016	£ 0.4031	£ 1.1411	£ 0.7645
25530004	HO02	£ 0.1832	£ 0.1227	£ 0.5186	£ 0.3475
25535005	HO04	£ 0.0050	£ 0.0033	£ 0.0240	£ 0.0161
25910000	EB07	£ 0.3459	£ 0.2317	£ 1.0292	£ 0.6896
25911000	EB06	£ 0.3811	£ 0.2553	£ 1.3130	£ 0.8797
25912000	EB07	£ 0.2824	£ 0.1892	£ 0.8311	£ 0.5568
25913000	EB06	£ 0.3132	£ 0.2098	£ 1.0523	£ 0.7050
25915000	EB06	£ 0.3539	£ 0.2371	£ 1.0962	£ 0.7345
25920000	EB07	£ 0.3274	£ 0.2193	£ 1.0934	£ 0.7326
25936005	HT01	£ 0.4810	£ 0.3223	£ 1.0428	£ 0.6986
25939001	EB03	£ 1.2168	£ 0.8153	£ 2.5469	£ 1.7064
25940001	EB01	£ 1.7794	£ 1.1922	£ 3.7798	£ 2.5325
25943001	EB01	£ 1.0281	£ 0.6889	£ 2.1478	£ 1.4390
26936004	HT01	£ 0.4727	£ 0.3167	£ 1.1951	£ 0.8007
27936004	HT01	£ 0.3464	£ 0.2321	£ 0.7436	£ 0.4982
28936004	HT01	£ 0.4911	£ 0.3290	£ 1.1688	£ 0.7831
29936004	HT01	£ 0.4687	£ 0.3140	£ 1.1161	£ 0.7478
11731001	EA01	*	*	*	*
11815720	EA02	*	*	*	*
12251310	EJ01	*	*	*	*
12338800	HL07	*	*	*	*
13578825	HA07	*	*	*	*
22227000	ED10	*	*	*	*
22239000	ED02	*	*	*	*
22903203	HE02	*	*	*	*
25433000	HL02	*	*	*	*
25449000	HL02	*	*	*	*
25503000	EE01	*	*	*	*

* The Capacity Charge tariff for these service codes has not been finalised by Arup. We will provide an updated set of tariffs including these service codes as soon as practically possible, and in any case by May 2013.

Freight operator tariff

£ per train mile

2012-13 prices	Draft pricelist			
	CP5 tariffs based on CP4 Schedule 8 payment rates		CP5 tariffs based on possible CP5 Schedule 8 payment rates	
	CP5 weekday tariff	CP5 weekend tariff	CP5 weekday tariff	CP5 weekend tariff
Freight	£ 0.4678	£ 0.3134	£ 0.8600	£ 0.5762