OFFICE OF RAIL AND ROAD

Draft impact assessment on the infrastructure costs package

Contents

1. Summary

1. The purpose of this impact assessment is to assess the potential benefits and costs of an improved attribution of Network Rail's infrastructure costs, and potentially reflecting this in a more cost-reflective charging structure. It is a more detailed and technical assessment of the benefits and costs of the 'infrastructure costs package', which was one of the options discussed in our first consultation on the review of Network Rail's PR18 structure of charges. The option is described in detail in section 4 of this impact assessment.

2. This impact assessment starts by setting out the counterfactual structure of charges relevant to this package (section 2), the rationale for intervention (section 3), as well as the appraisal criteria used (section 4), including the counterfactual scenario against which we compare these options. The impact assessment then sets out a detailed description of the option under consideration (section 5) and finally sets out our appraisal of the two sub-options (sections 6 and 7) which describes the various costs and benefits of the infrastructure costs package.

Sub-option 1: An improved attribution of Network Rail's infrastructure costs

3. Positive impacts could include:

- **Reduced network costs.** It will support Network Rail, and ORR as the regulator, to identify the most cost effective ways in which to manage its network. It will also improve transparency of Network Rail's spending and asset management. Better information will improve ORR's and others' ability to monitor and influence this.

- **Supporting better franchising.** Franchise specifications and bids would be developed against better information of the costs of using the network. Governments would be able to better assess whether the benefits of specific services outweigh the costs.

- **Informing investments.** Similarly to better franchising, better investment decisions can be made if the quality of cost information is improved. A 2015 report by Steer Davies Gleave for ORR, "Identifying the benefits of an improved understanding of Network Rail's costs and cost drivers" (2015 SDG report) concluded that some past investment decisions may have been sub-optimal due to insufficient identification of costs, links between costs and benefits, and understanding of which expenditure was needed to deliver specific functions.

- **Better capacity allocation.** A more robust understanding of costs could improve Network Rail and ORR's decisions on the allocation of rights to use network capacity.

- **Increased transparency of governments' allocation of funding.** A better understanding of the geographic location and driver of costs will be needed in order to make fully informed decisions about the allocation of subsidy between different parts of the network and between different operators.

- **Supporting devolution.** For successful devolution of Network Rail decisions, or funding decisions, an accurate attribution of costs between regions is likely to be necessary. An inaccurate or insufficiently granular attribution of costs could lead to distortions.

4. Challenges of obtaining a better understanding of the drivers of infrastructure costs could include:

- A better understanding of the drivers of Network Rail's costs will **require collecting more granular data than is currently required** under the existing structure of charges. The potential size of the benefits described above is dependent on the quality of the underlying data. Early discussions with Network Rail indicate that the necessary source data already exists.

- Each stage of this process will **require engagement of significant resources** - from the early option development stages through to testing of a pilot area and ultimate rollout.

- For any of the benefits to be realised, the information will need to actually be used by Network Rail, ORR and funders. And **they will need to ensure sufficient awareness and understanding** of this analysis, both by themselves and wider industry.

Sub-option 2: Exposing operators to charges which reflect attribution of infrastructure costs

5. The benefits of passing better cost information through charges are in addition to those above. They are dependent on changes to external factors such as franchised operators' exposure to charges. Additional benefits include:

- **Support lower network costs and efficient decision making.** A more cost-reflective charging structure, where operators face the costs they impose on Network Rail, will provide them with the appropriate incentives to reduce those costs through more efficient operational and rolling stock decisions.

- **Reduced network costs by holding Network Rail to account**. If charges reflect the full cost of the parts of the network which they use, operators should be more highly motivated to push Network Rail to reduce costs and increase efficiency.

6. Additional challenges of exposing operators to cost-reflective charges include:

- If we were to levy an increased proportion of charges on a variable basis, this would reduce the predictability of charges to operators. In addition, it would increase the overall variability of Network Rail's income, reducing certainty of the total income Network Rail will receive.

- A more cost-reflective charging structure would necessarily see **the charges levied on some parts of the network on some operators go up, while the charges to others go down**. This brings about the benefits described above but could potentially be damaging to freight or open access operators, in the absence of an additional mechanism or adjustment (implemented by ORR or governments) to protect those operators.

- The rail industry, and operators in particular, will face one-off costs, which will go towards **training industry professionals to familiarise themselves with the new charging framework**. These costs could be reduced by having a sufficient lead-in period.

7. There may also be a need to **reflect any changes in the franchise agreements**, which could imply a cost of transition to be incurred by DfT, Transport Scotland and the relevant operators.

2. Counterfactual

8. The counterfactual is the scenario we are comparing the infrastructure costs package against. For the purposes of this assessment, we define the counterfactual as a 'do nothing' scenario. We assume no substantial changes to Network Rail's structure of charges, as well as no substantial changes to contractual, funding and regulatory arrangements in the wider rail industry (i.e. the current 'state of the world').

The current structure of charges

9. Under this scenario, operators pay to access the rail network under the existing structure of charges, which you can read more about in Annex A to our consultation document. The current structure of charges includes charges which recover the costs of building, renewing, maintaining and operating the network that are not recovered by short-run variable charges (SRVC).

10. The infrastructure costs package is focused on the understanding of costs which do not vary in the short-run. Therefore the current charges and incentives which are potentially relevant are the freight specific charge (FSC), the freight only line charge (FOL), the stations long-term charge (SLTC) and the fixed track access charge (FTAC)[1]. For convenience, this document will refer to the costs recovered by these charges collectively as fixed costs.

a) FSC

- The FSC was introduced in PR13. It was designed to better reflect the extent to which the charges that Network Rail's freight operator customers pay reflect the costs that they impose on the network. It is levied as a mark-up on the variable usage charge (VUC) to recover 'freight avoidable costs' (which means that its recovery is linked to freight tonne km). These are defined as the infrastructure costs that would be foregone if commercial freight services no longer used the network. Because there are wider economic and social benefits to rail freight, principally when freight would otherwise have travelled by road, the FSC is paid only on commodities which cannot easily or economically switch to road. The FSC is paid on Electrical Supply Industry (ESI) coal, spent nuclear fuel and iron ore.

b) FOL

[1] The FTAC is calculated before network grant. The network grant is then divided between operators on a pro rata basis to the FTAC allocation. For the purposes of this impact assessment, except where stated, 'FTAC' will be used to mean the costs which are captured by both FTAC and network grant.

- The FOL recovers the fixed costs of freight only lines. Like the FSC, it is levied on ESI coal, spent nuclear fuel and iron ore as a mark-up to VUC.

c) SLTC

- The SLTC covers the costs of long term maintenance, repairs and renewal (MRR) costs at stations. It is charged by the station facility owner to train operators that call at the station. It is based on the calculated efficient MRR expenditure over 35 years (franchised stations) or 100 years (for managed stations).

d) FTAC

- The FTAC covers all costs in the revenue requirement not recovered by the rest of the structure of charges (the 'net revenue requirement'). For England and Wales[2], costs and income are calculated at route level[3] to create route-based FTACs.[4] Allocation metrics (primarily train km or vehicle km) are used to allocate these to train operators.

The current state of the world

11. This sub-section briefly describes the key features of the current state of the world which are relevant to the infrastructure costs package. You can read more about the work that has been carried out by the Rail Delivery Group (RDG), with ORR's support, to develop a set of alternative states of the world, in Annex C to our consultation document.

12. Franchised passenger operators are currently given **protection from changes in most track access charges over the duration of the franchise.**[5] This limits the impact of the price signals that can be sent through charges, as franchised operators will not be exposed to changes to the level or structure of charges until the franchise is retendered (except in the case of in-franchise changes to services, which will be subject to the current structure of charges). Indeed, evidence we have gathered suggests that this limits the incentive properties of existing charges – i.e. operators do not actively consider the charging implications of their decisions about how to run services. A 2014 report by Credo for ORR, "Evidence gathering on the effectiveness of PR08's incentives regime" (2014

[2] A separate FTAC is calculated for Scotland.

[3] Specifically: operating and maintenance costs; variable track access charges income; other single till income; and net income/expenditure for Schedule 4 and Schedule 8.

[4] RAB-related costs are an exception. These are calculated at national level and allocated to routes on the basis of forecast long-run renewal costs.

[5] Electric current for traction (EC4T) is excluded from these protections

Credo report) found evidence that franchise protections weaken the incentive properties of many of the charges, leaving them only able to affect decisions at the margin.

13. **Franchise services are highly specified.** Franchise specifications, including conditions such as duration of the franchise (the duration of current franchises is typically around 7-15 years), minimum service levels and performance targets, are highly specified.

14. Currently, **freight and open access operators are fully exposed to any changes in charges** and therefore have to adjust their businesses accordingly. Typically network charges are large relative to operating profits, which means that changes in charges can have significant impacts on freight operators, albeit that this impact depends upon the extent to which market prices adjust to changes in network charges.

15. The **flow of funding in the industry means that operators are not fully aware of the costs which their use imposes on the network and are not exposed to the corresponding charges.** The governments provide a large proportion of industry funding through the network grant. This is a lump sum payment to Network Rail which is then netted off the FTAC. A consequence of this is that operators do not face the full fixed costs they impose on the network.

16. **Track access rights are determined through an administrative process of negotiation with Network Rail,** but subject to ORR administrative approval (or determination where parties cannot agree terms). In effect, ORR sets the framework for contracts, consistent with European rules. The level of specificity in contracted access rights affects the choices Network Rail has and the ease with which it can develop an optimal timetable to run. Historically, passenger train access rights have often included specification of journey times and service intervals closely reflecting franchise commitments. This can limit Network Rail's timetabling options, especially on busy routes, and makes significant changes to the timetable harder to manage. In theory, these inflexibilities can also limit the overall capacity available. With ORR's encouragement, Network Rail is moving to less specified rights which should reduce these problems.

17. **Government decisions on outputs are determined through an administrative process** (in the form of investment and expansion of capacity) on the rail network through the High Level Output Specifications (HLOS) process. This process involves significant analysis, but does not benefit from a detailed understanding of Network Rail's costs or operators' response to cost-reflective charges.

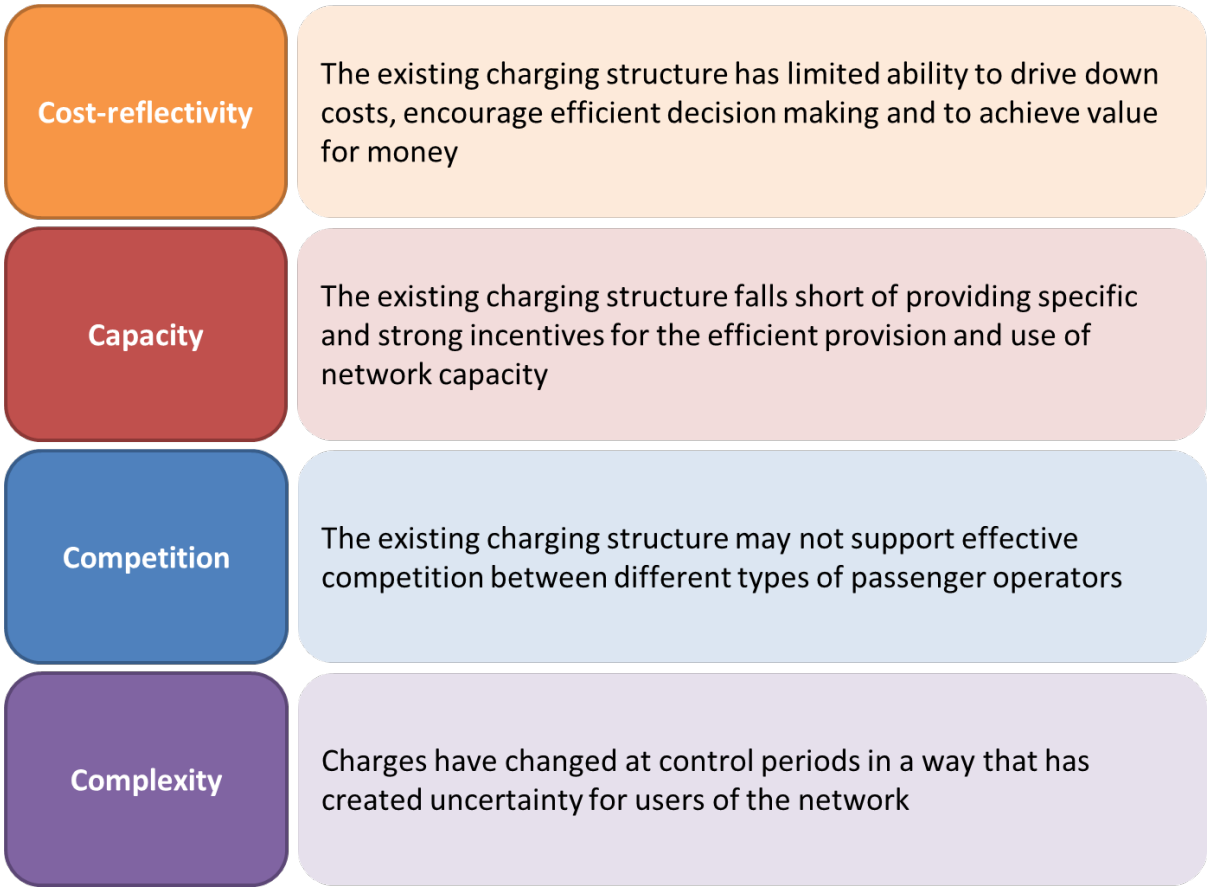
18. **A large proportion of industry decisions around funding, operation and rail policy are made at a national level,** both in governments and in Network Rail.

3. Rationale for intervention

19. As part of the structure of charges review we have carried out a gap analysis (more information is provided in Annex B to the consultation document). This involved comparing the outcomes of the existing charging structure with our charging aims and objectives. It helped us to understand how far our current charges are from meeting these aims and objectives.

20. The gap analysis identified the following four thematic areas which summarise the apparent main shortcomings of the existing charging structure. These themes provide a helpful framework for thinking about options for how we might best improve the existing charging structure.

Figure 1: Summary of ORR gap analysis of charging structure



21. There is a **relatively low degree of understanding about the drivers of infrastructure costs**. This understanding is an important factor in a wide range of decisions made in the industry including: franchising; investment; capacity allocation; operations; and asset management.

22. In addition, the **FTAC lacks cost-reflectivity**. First, many costs occur at a much more local level than route level (for example, the maintenance and renewal (M&R) costs of a particular track section or bridge). By allocating costs at a route level, charges do not always adequately reflect specifically where they are caused. Second, as the FTAC is allocated to operators by simple metrics, it effectively assumes these costs are completely fixed and does not capture the way that costs can vary in the medium to long-run, or that different service characteristics or use of capacity can impact costs in different ways. These issues are discussed in more detail in the next section.

23. If charges better reflected the cost of providing infrastructure (so-called cost-reflective charges) this could reduce overall costs: if train operators pay for the costs they cause, this is likely to encourage them to find ways to reduce them. Cost-reflective charges would also send better signals to Network Rail and its customers around the provision and use of network capacity.

24. FTAC recovers a broad range of costs incurred on the network. These include costs incurred to deliver 'commercial' benefits (i.e. costs that can be recovered through the incremental farebox revenue) and costs incurred to deliver wider economic benefits (i.e. costs that cannot necessarily be recovered through incremental farebox revenue). In general terms, the principles of cost-reflectivity would imply that the former should be reflected in charges to rail users, whilst the latter would be attributed to those – outside of the railways – who benefit, and recovered through government subsidy. The combination of FTAC and network grant covers both access charges and subsidy, but there is currently no explicit link between this split and the split between commercial benefits and wider economic benefits.

25. A better understanding of costs, whether or not we passed it in to charges, could support a more efficient use of the network, reduce Network Rail's costs by incentivising operators to hold Network Rail to account, and strengthen Network Rail's incentives around provision of capacity. Better information about the drivers of fixed costs would feed through to decision-making by governments, Network Rail and ORR.

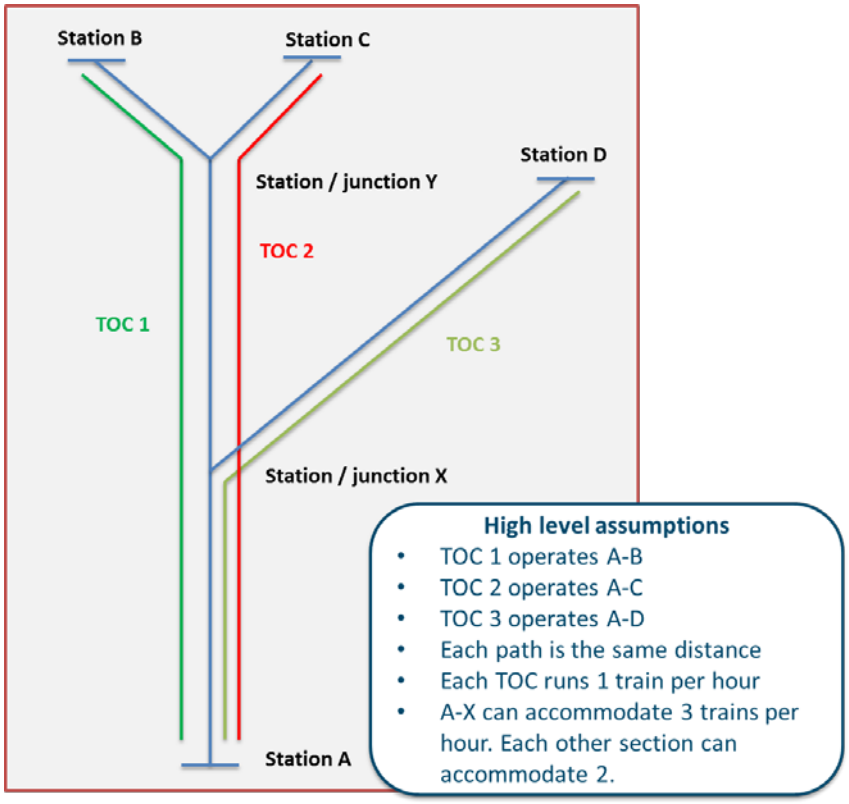
26. We know that many costs occur at a much more local level than route level – the costs of the Brighton-Eastbourne line are likely to differ significantly from those between Brighton and East Croydon, or from East Croydon to Victoria. By allocating costs at a route level, charges do not reflect the geographic level at which they are caused. Similarly, use at different times of day or by different types of rolling stock might determine certain types of infrastructure costs (e.g. platform lengthening or electrification). The following example explains these concepts and the potential impacts.

Stylised example of charges resulting from improved cost attribution

27. A way to understand the benefits that may result from an improved cost attribution is to consider a stylised example. We have developed the following example to illustrate the concepts behind the infrastructure costs package. We use the example of geographical disaggregation of costs, but the general principles could apply to other forms of more cost-reflective charging.

28. Figure 2 below illustrates how an FTAC-like charge would differ on a hypothetical route if a more geographic cost attribution were used.

Figure 2: An illustrative example of a more geographically disaggregated recovery of infrastructure costs



Route section	Costs
A-X	£6,000
X-Y	£3,000
Y-B	£1,000
Y-C	£1,000
X-D	£2,000
Station/Junction X	£12,000
Station/Junction Y	£8,000
Station A	£3,000
Station B	£1,000
Station C	£1,000
Station D	£1,000
Central Costs	£21,000

29. On this route, there are three different origin-destination combinations of services (A➔B, A➔C, A➔D), relying on two junctions (X, Y) and operated by three different operators (1, 2, 3).

30. The figure shows a breakdown of the infrastructure costs (as an annualised cost) for each track section. In this example, we have assumed that over time, the full costs of building and maintaining infrastructure on sections carrying more traffic are higher than on sections carrying less traffic. On the sections A➔X and X➔Y all available capacity is used by the operators running on them, meaning no additional services can be run on this part of the network without removing some existing services or investing in new infrastructure.

31. Table 1 illustrates that under the current fixed track access charge methodology, each operator would pay the same charge, £20,000 in this simplified example. This is because traffic related fixed costs (total £39k) are estimated at a route level, and then allocated to operators based on simple metrics (primarily train miles). In this example, we have assumed all the TOCs run the same number of trains over the same distance. Central costs (total £21k), which are those that do not vary with traffic, such as an IT system, would be allocated in the same way as under the current methodology.

Table 1: Charging outcomes based on different geographic locations

	TOC 1	TOC 2	TOC 3
Traffic related fixed costs	£13,000	£13,000	£13,000
Central costs	£7,000	£7,000	£7,000
Total	**£20,000**	**£20,000**	**£20,000**

32. Pursuing the infrastructure costs package could enable us to estimate costs on the basis of the use that each TOC makes of each section of the route. In this example, TOC 1 would be incurring costs for: one third of the costs for stations A and X, one third of section A➔X. There are many options for how central costs could be allocated but for simplicity in this example we continue to use the same approach as for the counterfactual (i.e. train miles).

33. Table 2 below shows the difference in charges between our current charging structure and the outcome if fixed costs were estimated and allocated to individual route sections (i.e. at a more disaggregated level).

Table 2: Illustration of potential cost allocation under the infrastructure costs package

	TOC 1	TOC 2	TOC 3
Counterfactual	£20,000	£20,000	£20,000
Costs estimated at a route section level	£21,500	£21,500	£17,000
Change in cost estimate	**+£1,500**	**+£1,500**	**-£3,000**

34. A comparison between Tables 1 and 2 illustrates some of the potential effects of better cost-reflectivity.

- **TOCs would be allocated the costs of the parts of the network they actually use. In this example, better cost allocation allows TOC 1 & 2 to face the (higher) cost of the network they use**, whilst TOC 3 would benefit from using a less costly part of the network.

- **Better understanding of cost drivers and potential for better incentives on TOCs to reduce costs.** This information would improve our understanding of which services cause costs to be incurred. If this was included in charges that TOCs faced, TOCs 1 and 2 would retain the benefits from any cost reductions at station/junction Y, rather than having to share some of these costs savings with TOC 3.

- **This strengthens incentives on capacity usage.** Better information about costs allows a greater understanding of whether the overall benefits of each of these services exceed the costs of them running. Greater cost-reflectivity might, for example, reveal that the revenue from TOC 1's service does not, in fact, cover its full cost, and that it would be better off reducing its services to only run from X➔B. It might also reveal that TOC 3's services are of higher value than is implied by the current charging approach, and that it may want to expand. If charges reflect these cost differences, incentives expansion/reduction of services and/or for open access entry could be strengthened.

35. This example could be extended further to show more generally how more cost-reflective charging could lead to improved outcomes. For example, if costs were driven by specific traffic types, for example, an attribution could capture that and charges could be levied accordingly, which would further strengthen incentives.

4. Appraisal criteria

36. We have developed a set of appraisal criteria to provide a framework for assessing the impacts of different future charging options we could consider as part of the upcoming periodic review. Specifically, the criteria will help us measure:

- how successful each option is at meeting our charging aims and objectives; and
- how much it helps to address the identified gaps.

37. The assessment criteria will also help to ensure consistency of approach as we assess different charging options. It will help to ensure that we do not miss any relevant costs and benefits. The following criteria were decided after considering a range of sources based on the legal and policy aspects:

A. Impact on key charging aims and objectives;

B. Wider policy impacts;

C. Potential for the option to address identified gaps;

D. Wider external impacts;

E. Legal impacts; and

F. Alternative states of the world.

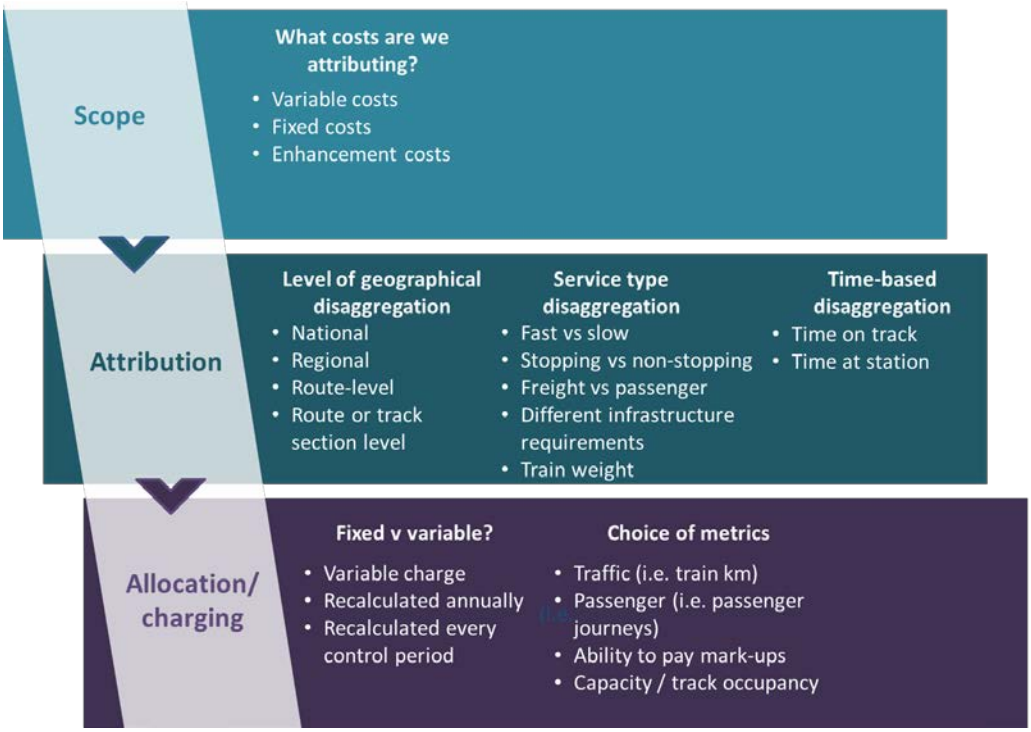
38. In Annex D to our consultation document we provide an overview of each of the above criteria, in particular the rationale for including, and sources used in creating, each criterion, and important considerations when applying the set of criteria to the assessment of the long-list of options.

5. Option generation

39. The primary objective of the infrastructure costs package is to develop a charging structure in which the costs currently captured by fixed charges (i.e. the costs which are fixed or vary only in the medium to long-run) are recovered in a way that reflects their cost drivers.

40. Figure 3 below is a stylised illustration of the process for developing a more cost-reflective charge.

Figure 3: The process for developing a charge



Scope

41. First, we need to decide the scope of the costs to be recovered. **The scope for the infrastructure costs package** is all of the costs in Network Rail's revenue requirement, minus the ones already captured by SRVC (and any remaining network grant funding). If we decided to implement new charges as part of this package, we envisage that these new charges would replace some or all of the existing FTAC. They could also potentially capture the costs in the FSC, FOL or SLTC. This might allow for the removal of other existing charges, resulting in fewer charges overall.

Cost attribution

42. The second step in this process is to understand what is causing the costs to be incurred (i.e. the cost-drivers). We refer to this as the attribution of costs.

43. **Costs are attributable to an activity if changes in that activity lead (immediately or over time) to changes in the overall level of cost.** For example, the cost of electricity infrastructure on a line could be attributed to any electric rolling stock, but not to those that are diesel powered. Signalling infrastructure provides use for particular geographic areas, and so could be attributed to those areas. In the current charging structure, examples of attribution include the use of engineering models to measure the impact of marginal traffic increases on wear and tear costs for the VUC, or the use of meters to measure electricity use for EC4T.

44. There are a number of ways to attribute infrastructure costs to use, including:

- **'Avoidable costs'**. This approach would aim to attribute Network Rail's costs to services in a way that reflects the costs that would not have been incurred in the absence of that service.
- **'Long-run incremental cost' (LRIC) or long-run marginal cost (LRMC).** This approach would aim to also attribute the costs relating to constrained capacity. That is, attributing the expected future investment costs which would be required to accommodate a specified increase in traffic on the network.

45. Avoidable costs and LRIC are basic descriptions of the attribution methodologies. But there is a wide range of options around the detail of the methodologies within these which include:

46. **Geographical attribution:** This means determining where costs occur and whether they relate to a specific section of the network, to a wider region or route, or whether they are common to the network as a whole. Currently, the FTAC is attributed at a route level before then being allocated to operators for the purposes of charging. The infrastructure costs package could involve a more granular attribution.[6] But practical factors such as data availability, the resulting complexity of calculation and the ease with which costs can realistically be attributed are key considerations.

[6] In CP4, the FTAC was attributed at a strategic route section (SRS) level, before being aggregated to route level.

47. **Traffic type attribution:** Some costs will vary on the basis of service or traffic characteristics. These characteristics could include:[7]

- Geographic extent of the network and the availability of stations and depots;
- Ability of the network to accommodate higher throughput (i.e. peak capacity and service frequency);
- Freight-specific and passenger-specific infrastructure;
- Variations in service speed; or
- Physical train characteristics (e.g. electric/diesel, train length);

48. **Capacity type attribution:** Some costs will vary on the basis of capacity usage characteristics, in order to send appropriate incentives for the use of the track. These characteristics could include:

- Time on track;
- Time of day;
- Capacity utilisation, including the costs relating to;
    - Terminus or depot occupancy; or
    - Type of access rights held.

49. Network Rail has commissioned a consultant to look at approaches to identifying cost drivers and to conduct a pilot study on one of its routes. We are working with Network Rail on this. This could also inform the development of charging options. This work is on-going and due to produce disaggregated cost and traffic data and an assessment of the impact of service characteristics on costs by spring 2016. Early indications for the study appear to demonstrate the feasibility of doing this analysis, and that the necessary source data exists, though work is continuing to determine the level of accuracy with which costs can be attributed and how this might be translated into charges.

50. It may not be possible to attribute costs using these approaches. This might be due to a lack of information to allow a reliable link between costs and activity to be established. In addition, some costs will genuinely not be linked to activity. We refer to the latter as ‘common costs’.

[7] This is not intended to be an exhaustive list. Further analysis will help us determine the full set of traffic types relevant for attribution.

51. Choices can be made about how to allocate these remaining, unattributed costs.

Allocation and charging approach

52. The third step is cost allocation. The appropriate way to allocate costs will depend on the results of any cost attribution exercise and on the objectives we are seeking to pursue. In particular, cost allocation might seek to:

- **increase the cost-reflectivity of information and/or charges** by using methods that are likely to result in better cost-reflectivity of charges, designing charges that correspond to the cost attribution or – where attribution approaches have been unable clearly to link costs with activity on the network – using suitable approximations linked to likely cost causation. As a purely illustrative example, it might be observed by subject matter experts as part of a cost attribution exercise that Network Rail faces operational costs as a result of the complexity of timetable processes. And that this can be exacerbated by operators holding unused access rights which have to be taken account of. If this were the case, we might seek to consider a reservation charge to be justifiable on the basis of cost-reflectivity, even if a cost attribution exercise didn't directly assess this.

- **strengthen incentives** faced by operators and/or Network Rail, by seeking to recover unattributed costs in ways that encouraged better behaviours.

- **recover costs** in ways that avoid sending perverse incentives about network use.

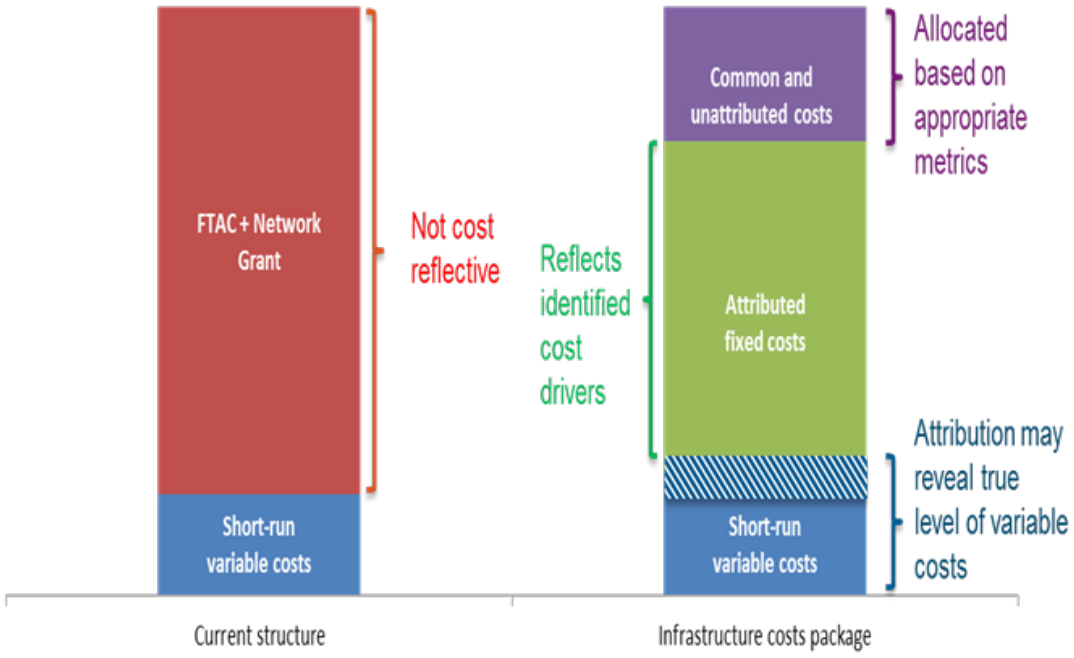
53. Even for costs that can be directly attributed to a train service, there are several factors to consider when deciding whether and how to allocate costs to charges. These include:

- the frequency of re-estimation of the charge; and

- which metrics should be used to allocate the charge (e.g. a lump sum charge for each year of the control period regardless of operator behaviour or a charge based on a metric the operator can control to some extent such as per train km).

54. **The next phase of our work would focus on developing more detailed options and understanding their effects.** Relative to the current charging structure, the charging structure which would result from implementing the infrastructure costs package could look broadly like figure 4.

Figure 4: An illustrative breakdown of a possible future charging structure



High-level options under the infrastructure costs package

55. A large number of decisions are taken through administrative processes, with others taken on a more commercial basis. Where decisions are taken administratively, better information can improve the quality of these decisions, whilst commercial decisions are influenced by financial incentives rather than simply by the existence of better information (i.e. commercial parties need a reason to act on information). Better cost attribution may therefore have significant positive impacts without exposing operators to charges based on that attribution.

56. It is therefore, for the purposes of policy development, worth assessing the infrastructure costs package as two broad sub-options:

- **Sub-option 1:** A better attribution of Network Rail's infrastructure costs, which would lead to a step change in the industry understanding of these costs and what drives them; and
- **Sub-option 2:** A better attribution of Network Rail's infrastructure costs, which would lead to a step change in the industry understanding of these costs and

what drives them, *together with* the resulting development of more cost-reflective charging structure on the basis of this attribution.

6. Option assessment of sub-option 1

57. In this section we assess – at a high level – the potential impacts of introducing the two sub-options of the infrastructure costs package, under the current state of the world.[8] The potential impacts are assessed against the counterfactual. The approach to assessing potential costs and benefits is based on the assessment criteria also outlined above.

58. Developing the infrastructure cost package further will result in a step change in our understanding of the drivers of Network Rail's costs. This information alone will increase transparency and should facilitate improved decision making. These 'informational benefits' are described further in this section.

A. Impact on key charging aims and objectives

Supports efficient use of the network, lower network costs and efficient decision making

59. **Reduce network costs.** A detailed understanding of cost attribution will enable Network Rail, and ORR, to identify the most cost-effective ways to invest in and manage the network. For example, it could provide better information on the activities and locations on the network that are most costly or least efficient, and help to identify investment or asset management policies to reduce costs to be focused on these areas.

60. **Improve network use and hold Network Rail to account.** This package would lead to increased transparency of what Network Rail is purchasing and where costs are incurred. For example, we could imagine two sections of the network which differ in one key characteristic (which is a cost driver that isn't well understood by ORR, operators or funders) but which are otherwise identical. Network Rail may be currently incentivised to focus maintenance and renewals activity in the lower cost section, to the detriment of the other, as this will look more efficient. If cost drivers could be better understood by, for example, cost efficiency benchmarking, it would improve the ability of operators, ORR and funders to hold Network Rail to account. Similarly, it might provide additional information about the location of M&R expenditure and whether relatively low expenditure might explain poor operator performance on that part of the network.

61. In respect of both of these aims, it is difficult to quantify the likely impacts. But the scale of Network Rail's total expenditure provides an indication of possible orders of magnitude. For example, operations, renewals and maintenance expenditure for CP5 was

[8] For both sub-options, the precise impacts will be dependent on the attribution approach used. For sub-option 2, they will also depend on the allocation/charging approach applied.

forecast to be more than £21 billion, so even a small, 1% saving would represent a large cost saving in absolute terms.

Supports efficient provision of network capacity

62. **Support better franchising.** Franchise specification and bids could be developed against a better understanding of the actual cost of using the network. Governments would be able to assess more accurately whether the benefits of specific services outweigh the costs. Indeed, it would be possible for governments to include explicitly the information about network cost impacts in the overall appraisal of franchise tenders. One potential illustration of the magnitude of such effects – when franchise service specifications affect network costs – is scope efficiencies of hundreds of millions that were achieved in the Edinburgh Glasgow Improvement Programme, which involves the refinement of the specification of the improvements to the Edinburgh-Glasgow services. A change in the service pattern (to longer but less frequent services) delivered the increase in seat capacity that Transport Scotland wanted but with much lower capital costs.

63. **Inform investments.** With costs properly allocated, the benefits of additional investment are clearer, and governments are able to use better evidence to make investment decisions on the back of this better information. The 2015 SDG report examined a number of case studies on the rail network, including electrification projects and station enhancements, in a report for ORR on the benefits of a better understanding of Network Rail's costs. They concluded that insufficient identification of: costs; the links between costs and benefits of projects; and which expenditure was needed to deliver specific operational functionality, may have resulted in inefficient investment costs. SDG estimated that the potential cost saving of a better cost understanding in these areas could be more than £100 million per control period.

64. **Capacity allocation.** A more robust understanding of costs could improve Network Rail and ORR's decisions around the allocation of rights to use network capacity. For example, ORR is currently assessing a number of access applications to run passenger services on the East Coast Main Line. The magnitude of these impacts depends on the scale of the resource costs and also upon the likelihood that a decision would be different as a result of this information, which is inherently very difficult to assess. But, as an illustration of the scale of the issues being considered during access applications, it was estimated that a recent application by GNWR to run extra services on the West Coast Main Line would have generated more than £6m of new revenue for the rail industry per annum (in 2013/14 prices).

Impact on charging principles

65. The current lump-sum FTAC and network grant provides limited transparency to the rail industry as a whole (including governments, Network Rail and train operators) of which costs are being attributed to which activities or what government money is being spent on. As described in the previous section, **the infrastructure costs package should increase this transparency** and could support better decision-making that has potential to deliver significant.

B. Wider policy impacts

66. This option represents a step-change in the level of analysis of Network Rail's costs. There will be significant up-front costs in developing and implementing it.

67. It may be that a better attribution of Network Rail's costs will require **collecting more granular data** than is currently required under the existing structure of charges. There could also be a potentially significant amount of work in managing this data. The potential for better cost attribution to achieve the benefits described above depends on the quality of the underlying data. If the data is not sufficiently granular or high-quality, the benefits above will be limited or larger costs will have to be incurred to improve the quality of the data. Early discussions with Network Rail and Brockley Consulting indicate that the necessary source data already exists and they are working towards an approach to cost attribution that can be automated (rather than manually attributing costs on each route section). So, this indicates that these data collection costs may not be very high.

68. The development and implementation of the cost package is likely to be highly resource intensive. Each stage of this process will **require engagement of significant resources –** from the early option development stages through to testing of a pilot area and then the ultimate rollout of the new attribution to the whole network.

69. For any of the benefits to be realised, the information will need to actually be used by Network Rail, ORR and funders. Decisions can only be improved by a better understanding of costs if they are genuinely understood and made use of where they can add value. Network Rail will need to be committed to developing, carrying out, and periodically updating the cost attribution analysis, and **ORR and funders will need to ensure sufficient internal awareness and understanding of the information** so that it can be used to inform decisions. This will most likely entail a continuing stakeholder industry engagement exercise as the analysis develops.

70. The direct financial costs are likely to be in the order of several million pounds. Given these costs, it is important for this work to be done correctly prior to implementation in PR18, so that these costs only have to be incurred once.

71. There would also be costs associated with stakeholders building their understanding of the new allocation approach. Under sub-option 1, this does not result in changes to charges. Consequently, these costs appear most likely to be incurred by stakeholders involved in significant decisions, where the new information could inform the decision-making process. For example, there would be more information available for the franchise bidding process, as well as the assessment of capital projects and access decisions. At present, these processes need to take a view on the impacts on infrastructure costs, suggesting an opportunity for an offsetting cost saving. This implies that the overall costs of the transition to better information would not result in any *significant* net additional cost to stakeholders.

C. Potential for the option to address other gaps

72. The discussion of impacts thus far has focused on how the sub-option 1 might address the infrastructure costs and value-based capacity gaps. It may also have impacts on the other gaps from our gap analysis:

Competition

73. This option will allow better identification of the costs of adding traffic onto specific parts of the network which will enable better identification of opportunities for increased competition on the network, and improve ORR and Network Rail's ability to assess track access applications.

74. But for open access operators, an increase in the magnitude of charges they face could, in the absence of wider changes, negatively impact their ability to compete on the network. Furthermore, setting charges based solely on the costs attributable to each route section may result in charges for under-used sections of track being above short-run marginal cost, and so discourage entry/expansion of services that would be beneficial overall.

D. Wider external impacts

75. **Increase transparency and help to inform government trade-offs.** A better understanding of the location and driver of costs will improve transparency and inform decisions about the allocation of subsidy between regions, and to different franchised, freight and open access operators. This improved transparency would further support the

UK Government's announcement that it was going to change the way public money was channelled through the industry.[9]

76. **Support devolution.** For devolution of Network Rail management decisions to route level, or further devolution of funding decisions to a regional level, an accurate geographic attribution of costs between regions and nations is likely to be necessary. If funding were disaggregated to a sub-national level, an inaccurate or insufficiently granular attribution of costs could lead to distortions, with costs being allocated to one region when they should more accurately be allocated to another one, which could ultimately lead to some routes or regions receiving insufficient funding to meet their output specifications.

77. For devolved authorities to be able to make informed decisions around improving the operation and performance of their parts of the network, they will need much more detailed information about costs than currently exists. This option will create the evidence base needed for successful devolution. The UK Government has announced that it wants Network Rail to continue working towards increasingly devolved decision-making within the company.[10]

78. Allocation of costs in a geographical way does not necessarily address all of the issues raised by greater devolution. In particular, it is possible that the benefits that flow from a particular capex project could be largely experienced in a different geographic area.

E. Legal impacts

79. This sub-option does not propose passing improved information on costs into charges. The relevant legislation on charging principles is therefore of limited use for this sub-option. We consider the legal impacts of passing these costs through to charges in Section E of sub-option 2.

[9] In the 2015 Budget, the Chancellor announced that "*The Government will change the way it channels public money through the industry, directing it through the train operating companies so that Network Rail focuses firmly on the needs of train operators.…*".

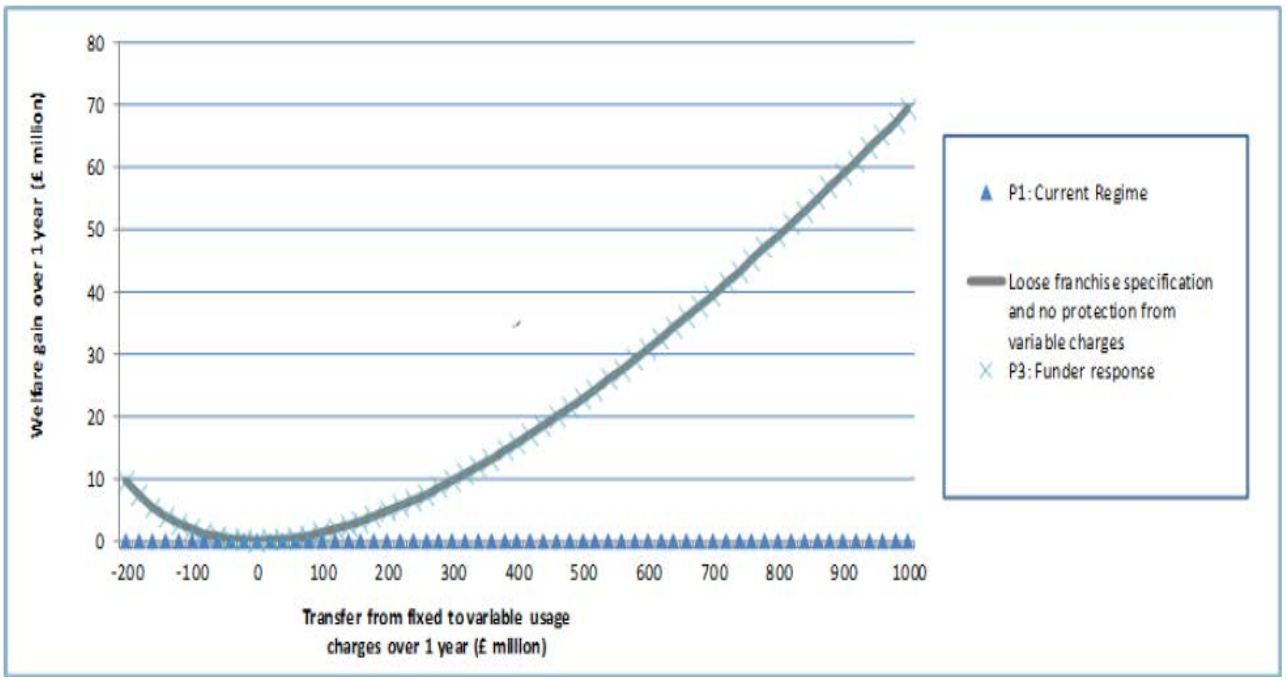
[10] In the 2015 Budget, the Chancellor announced that "*the Government has asked Sir Peter Hendy and Mark Carne, Chief Executive of Network Rail to continue with the work started in Network Rail to devolve more power to route managers closer to the front line, so that the railways are more focussed on delivering what passengers need and to drive comparative benchmarking of the efficiency and effectiveness of individual routes – to drive up performance across the network*".

7. Option assessment of sub-option 2

Potential magnitude of impacts

80. To illustrate the scale of benefits that could be achieved by introducing a more cost-reflective approach for Network Rail to recover fixed costs, see figure 5 below. It is taken from the 2015 SDG report. It estimates the possible 'welfare gains'[11] that could be achieved if the current variable-fixed charge balance was found to be incorrect and was rebalanced to the correct proportions. At 0 on the horizontal axis there is the assumption that fixed and variable charges for franchises are balanced correctly so that variable charges are equal to the variable costs franchised operators impose on the network.

Figure 5: Passenger franchise welfare gains



81. If variable charges are set incorrectly and do not reflect the correct balance of variable and fixed costs then economic theory tells us that a 'welfare loss' could occur. For example, if variable access charges are set below true variable costs, then Network Rail would not be able to recover the full costs of accommodating extra services on the network. It would cost Network Rail more to accommodate these services than the price paid by operators to realise the benefits of running those services. Or, to put it another way, Network Rail will not face strong incentives to find additional capacity on the network as it would not be able to recoup the costs of finding and providing that capacity – and it

[11] Welfare is a general term used in economics to refer to societal well-being.

may even experience a disincentive if accommodating that additional capacity impact on its operational performance.

82. For example, if it were found that variable charges were understated for franchised passenger operators by £1 billion per annum, there is the potential to gain £70 million per annum in welfare.[12] This illustrates that the potential benefits from more cost-reflective charging could be substantial. So, while this analysis is of a specific type of change that could come about as a result of the infrastructure costs package, namely recovering more costs through variable charging, it illustrates the potential magnitude of benefits in the industry in terms of possible efficiency savings.[13]

A. Impact on key charging objectives

Supports efficient use of the network, lower network costs and efficient decision making.

83. **Support lower network costs and efficient decision making.** A more cost-reflective charging structure, under which operators face the costs they impose on Network Rail, will provide them with the appropriate incentives to reduce those costs through more efficient decisions relating to rolling stock and operations. For example, in the 2015 SDG report, they looked at a case study on passenger services between Knottingley and Wakefield Kirkgate, which are part of the Northern franchise. They found that, despite having hourly services, the intermediate stations on this route were only used by a small number of passengers, but that there were fixed and M&R costs of the related infrastructure that could be avoided if those services didn't stop at those stations. A better understanding of the incremental costs relating to infrastructure and services would enable decision-makers to improve business cases and decisions around specifying services and operating the network.

84. **Reduced network costs by holding Network Rail to account.** In the previous section on sub-option 1, we described how better cost attribution could give operators the information necessary to improve the extent to which they can hold Network Rail to account on costs. But, if charges reflect the full cost of operators' individual use of the network, they will be more highly incentivised to push Network Rail to reduce costs and increase efficiency. Even a small (1%) additional cost saving would be significant. One per cent of Network Rail's operating costs = £27m per annum, and one per cent of renewals costs = £24m per annum.

85. In both cases, without a change to the previously mentioned franchise protections relating to charges, we would expect this impact to be limited to freight, open access and

[12] Potential welfare gains were also calculated for freight and open access operators.

[13] This would be supported by social cost-benefit analysis.

newly awarded franchised operators. In addition, under the current system of tightly specified franchises, franchised operators are limited in their ability to react to the incentives that charges would impose upon them.

Supports efficient provision of network capacity

86. **Improved provision of capacity.** In the previous section on sub-option 1, we described how better cost information would allow decision-makers to make more informed capacity allocation decisions. But, if operators (and/or the franchising authority) were exposed to the costs of running a specific service, this could greatly improve capacity allocation, and potentially reduce administrative costs further. If the costs of provision of specific capacity were directly reflected in charges, then it may be more straight-forward for the ORR to assess access applications, as it would be less likely that an application would be made if the benefits of the relevant services did not at least cover the network charges they would face. This would reduce the likelihood of sub-optimal capacity allocation decisions and reduce administrative costs in the industry.

Impact on charging principles

87. The primary outcome of sub-option 2 of the cost package will be a **more cost-reflective charging structure**. If the infrastructure costs package is taken forward, the specific charges and implementation options will be determined at a later point in the policy development cycle. The option chosen could lead to an increased number of charges or, alternatively, allow for the removal of existing charges so that there are fewer charges overall. This **could either positively or negatively impact the complexity of the charging structure,** which has been described as an important consideration by a number of stakeholders at industry workshops.

88. The cost package represents a large structural change to the current charges which could be seen by industry stakeholders as introducing uncertainty over the stability of charges (at least in the short-term). If we were to recover more costs through charges linked to activity and actual costs incurred**, this could reduce the predictability of charges to operators and have impacts on the overall variability of Network Rail's income.** But this is intended to be a one-off reform which, following the transitional period, should offer greater ability for decision-makers to predict the charging implications of their decisions because the methodology of setting charges will be more transparent and cost driven. On the other hand, this option is intended to provide the rail industry with a better understanding of the link between costs and their drivers. In this respect, **following an initial transition period, the predictability of charges (at least for new services) should be increased as a result of this package.**

B. Wider policy impacts

89. The current lump-sum FTAC and network grant provides limited transparency to the rail industry as a whole (including the governments, Network Rail and train operators) of which costs are being attributed to which activities or what government money is being spent on. As described in the previous section, **the infrastructure costs package should increase this transparency.**

Distributional impact on operators

90. A more cost-reflective charging structure would necessarily see the charges levied on some parts of the network on some operators go up, while the charges to others go down. It seems reasonable to assume that reallocating charges based on a more cost-reflective attribution will see charges set at a higher level[14] on routes that have costly infrastructure and/or operations, which are likely to be those with higher levels of congestion and/or contain a lot of peak or high-speed traffic.

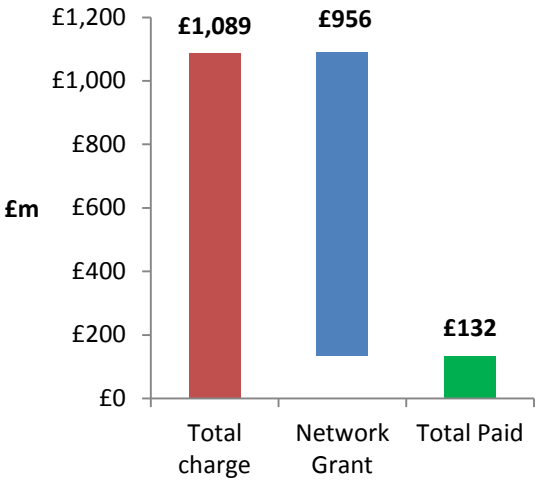
91. Similarly, charges on parts of the network with less costly infrastructure and/or operations, which are likely to be less congested and those with less challenging patterns of usage, would be likely to see the charges set at a lower level. Therefore, we might expect, in general, charges on intercity or urban routes to be higher, and charges on less congested, rural routes to be lower. But in practice there will be a number of competing cost drivers all impacting the cost attributed to areas and services. As Network Rail's revenue requirement is subject to economic regulation, the overall income generated through charges would not change; rather there would be a shift in how these charges recover the same level of revenue requirement.

92. As an illustrative example of how charges might change in such an approach, we have taken the results of a 2005 AEA report for ORR, which allocated Network Rail's fixed costs on the basis of avoidable costs, and applied the cost allocations to two of the Franchises that have changed relatively little in scope, South West Trains and Wales.

[14] Relative to, say, the levels set using the current FTAC methodology

Figure 6: Reallocating Arriva Trains Wales CP5 charges on the basis of AEA's 2005 avoidable costs analysis

Current charging allocation



Avoidable costs charging allocation

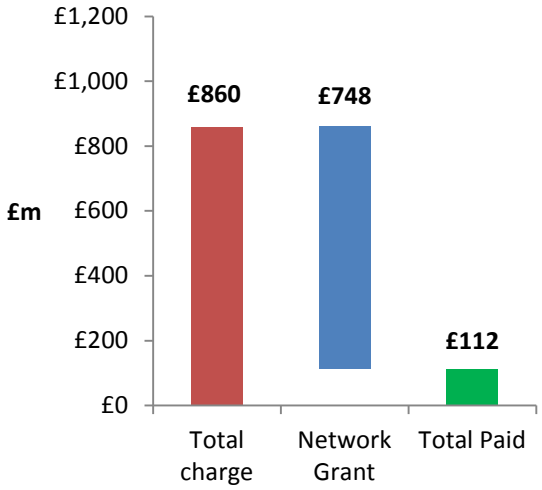
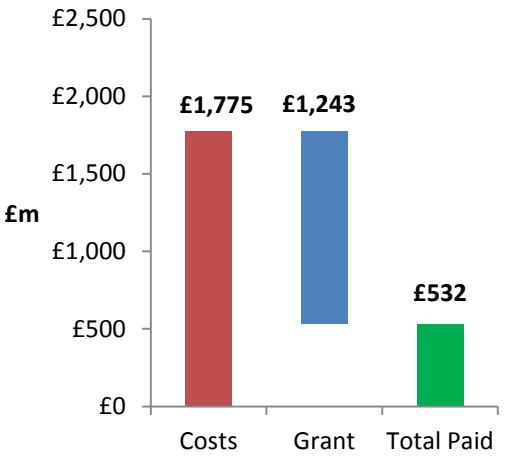
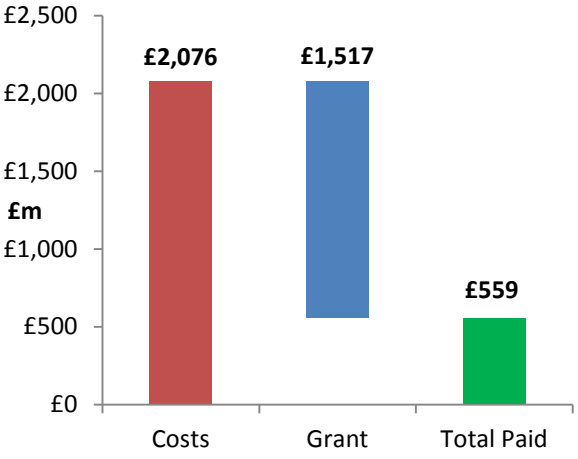


Figure 7: Reallocating SSWT's CP5 charges on the basis of AEA's 2005 avoidable costs analysis

Current charging allocation



Avoidable costs charging allocation



93. As figures 6 and 7 show, AEA's approach leads to a substantial reallocation of the costs attributed to the two operators.[15] Arriva Trains Wales, which operates primarily on rural, uncongested routes, sees a reduction in charges, while SSWT, which operates in the high-density Wessex route to/from London, faces an increase in charges.

[15] Note: 'costs' and 'total paid' here include variable charges. These are not assumed in the example to change as a result of the implementation of this option.

94. This example **assumes that the size of the total network grant remains unchanged,** and that the approach to allocating it is also unchanged.[16] This limits the impact that any change to the structure of charges will have on what operators pay, because the network grant is so large, relative to the final amount of FTAC that is paid by operators. Assuming that network grant policy remains unchanged, the overall impact on charges paid by operators will be much smaller. In this example, SSWT's charge would increase by £27 million (5.1%), while Arriva Trains Wales's charge decreases by £20 million (15.2%).

95. In addition**, franchised operators are currently protected from changes in the levels of charges within a franchise period** by their franchise authority. This means that even if the notional charge levied upon an operator were to change, there would be no immediate impact on franchised operators, with operators only becoming subject to the change in charging levels following franchise renewal. The impact of this option on the relative levels of charges paid by franchised operators would be much higher if the current network grant system were altered and/or if franchise protections were removed.

96. The above example, while meant to be purely illustrative, does not consider **the potential impacts of this reallocation on freight or open access.** A more cost-reflective charging structure, all else equal, could result in higher charges for freight or open access operators, potentially affecting the viability of their business models. Neither types of operator are protected from changes in the level of charges. For these operators, this may then require reconsideration of the level and type of protections that are currently provided. This may come in the form of new subsidy or redirected subsidy (possibly as part of the work to reconsider money flows) from governments, or in the form of direct caps or exemptions to the charges. It is worth noting that exempting operators from charges or capping them reduces the strength of those charges' incentives, while it may be possible to fully expose operators to the incentives while limiting their full financial exposure.

97. It is worth noting that ORR is legally required not to levy mark-ups higher than the market can bear. In the case of freight, certain commodities which are deemed to compete with road are exempt from the two freight charges and, in addition, the freight specific charge has a gradually increasing cap in CP5. For more information on these charges, please see the 2013 final determination of Network Rail's outputs and funding for 2014-19.

98. In addition, because open access operators are unlike franchised passenger operators, in that they are fully exposed to changes to the charges and incentives that are established at a periodic review, ORR concluded that existing open access operators will continue to pay CP4 rates for their existing services.

[16] It is currently allocated pro rata to operators on the basis of the pre-network grant FTAC.

99. So, other changes may be needed to funding or market arrangements before it would be sensible to fully expose freight or open access operators to cost-reflective charges. For example, these might be:

- **In the case of freight**, this might take the form of a grant to compensate freight for the positive congestion and environments impacts it has with regard to reducing the amount of freight on the roads. This could initially take the form of a lump-sum grant (potentially as part of change to route the network grant through train operators), transitioning over time to an appropriate unit grant; and

- **In the case of open access**, the Competition and Markets Authority has been reviewing on-rail competition in Britain. An option it has been considering is a market in which open access makes a greater contribution to costs on the network (potentially in the form of a PSO levy). A result of this would be that the ORR would relax its 'moderation of competition' policies, so that less marginal open access operators (e.g. services that compete more heavily with franchised services) could be granted access rights on the network.

Implementation challenges

100. In addition to the costs of developing the attribution methodology, this option would require the development by Network Rail of new charging methodology. The new structure of charges may require a redesign of the billing system to be able to accommodate it. This would likely result in a significant cost for Network Rail.

101. Aside from the direct costs of development and implementation**, the rail industry, and operators in particular, will also face one-off costs, which will go towards training industry professionals to familiarise themselves with the new charging framework.** Industry's internal processes of data collection and analysis are also likely to have to change. It is our intention for any familiarisation costs to be minimised through frequent engagement and consultation. Whilst it is difficult to quantify these costs at this stage, with 20 passenger and freight operators, and if we assume that five to ten individuals would need to take 5-10 working days to familiarise themselves with the arrangements, this might imply around 500 to 2,000 working days. This suggests that these transitional costs might be in the order of a £1 million one-off cost.

102. Some of the familiarisation and implementation costs could be reduced by having a sufficiently long lead-in period, for example by developing the methodology sufficiently in advance to be able to engage with operators and other industry stakeholders on its implications, or by delaying the introduction of any new charges (and possibly having shadow charges in their place) until after the beginning of CP6.

103. There may also be a need to reflect any changes in the franchise agreements, which could imply a cost of transition to be incurred by DfT, Transport Scotland and the relevant operators. At present, it is not clear whether these changes would be significant, or whether any changes in the framework would be dealt with by the current form of the franchise contracts, and whether there would be any consequential impacts in terms of making changes to the network grant mechanism. At this stage, we have not sought to quantify the cost of these changes at this stage, as these are likely to depend upon the detailed implementation of charging options.

104. There will be choices over the appropriate cost attribution approach to apply and charges to implement. One of the relevant considerations of this will be the costs and complexity of implementing these options. We expect to focus on these issues in the next phase of our work, but see the additional flexibility created by the changes to industry funding as a potentially important way to mitigate adverse impacts, this might include:

- measures to introduce any changes over time;
- consideration of how impacts might affect particular customer groups, such as those with a particularly high sensitivity to rail charges;

C. Potential for the option to address other gaps

Complexity

105. The likely cost attribution and allocation methodologies are inevitably complicated when they are applied to a complex network; albeit that the underlying principles being applied may be relatively intuitive. This implies that only subject matter experts would understand at a detailed level how charges are calculated. But to the extent that the methodology maintains a clear link between costs incurred and cost attribution/charges, the approach would provide a predictable relationship between costs incurred and charges, supporting decision-making on the basis of these charges. Furthermore, it may be possible to strengthen the accessibility of the charging approach, through the use of publicly accessible models, which would allow stakeholders to vary input assumptions and see how this translated into likely charge levels.

Capacity

106. The main gap that this package will address is that it will make the structure of charges substantially more cost-reflective. This package may also partially address the capacity gap. Where costs are currently only disaggregated at a route level, and don't fully reflect cost drivers relating to service characteristics, this is likely to spread the higher costs of this congested section over a larger area and therefore dilute them. Greater cost reflectivity of these costs would mean that those operators using the more congested

section would directly pay for the costs pertaining to that section. This illustrates that – if costs are higher where congestion and value is higher – the infrastructure costs package could move charges towards better reflecting the value of use.

Competition

107. Additionally, a better understanding of costs could also directly impact passenger competition on the network by enabling the calculation of the costs that open access and franchised operators individually impose on the network. This transparency would likely have limited impact by itself, but might provide useful information for ORR access decisions.

108. The infrastructure costs package could lead to open access operators facing a greater proportion of the costs they impose on the network. At the moment, ORR's track access policy places constraints on access granted to open access operators, to reflect the balance between the gains from competition and the adverse revenue impacts on funds available to the Secretary of State.[17] A charging structure which exposes open access operators to a proportion of fixed costs could allow for more large-scale competition from existing or new entrant open access operators.

109. For open access operators, an increase in the magnitude of charges they face could, absent wider changes, negatively impact their ability to compete on the network. It is worth noting that the High Court has recognised that open-access and franchise services are different, face different risks and may need to face different charges so that the overall effect is not discriminatory. So, any change to open access operators' exposure to charges would need to consider the market conditions in which they compete against franchised operators.

D. Wider policy impacts

110. All other things considered, the cost package is unlikely to have a major impact on the funds available to the Secretary of State. The package may lead to a redistribution of charges between different types of operator – but given the level of subsidy in the industry, both implicit and explicit, the direct impact on the Secretary of State's funds could be held broadly neutral through a redistribution of subsidy in line with the changes to charges

111. The cost package can incentivise the wider rail industry to work collaboratively with Network Rail in finding opportunities to drive down network costs. This might have a positive indirect impact on the funds available because this could reduce governments' level of network grant paid to Network Rail as well subsidies paid to franchised operators.

[17] Due to the flow of subsidy and premium between governments and franchised operators.

In addition, if more costs were attributed through the new charging structure to open access and/or freight, then this would bring down the level of charges paid by franchised operators. In turn, this could result in a reduced requirement by franchised operators for government subsidy.

E. Legal impacts

112. Any charging framework we put in place as part of PR18 has to be compliant with the relevant legislation. The European Railway Directive 2012/34/EU ('the Directive'), sets out the principles for access charging. This Directive should be transposed into British law soon and will replace the Railways Infrastructure (Access and Management) Regulations 2005 ('the Regulations'), currently in place. We expect this Directive to be transposed into British law before PR18 commences. Until this is transposed we cannot be certain of the exact provisions. However we expect many of the provisions to be similar to the Regulations, so we will use those and the Directive as a guideline for what the transposition may contain.

113. In this section we draw out the most relevant provisions in the legislation for the infrastructure costs package.

114. The starting point is that Network Rail must set fees for the use of the infrastructure at the cost that is directly incurred as a result of operating the train service. In addition, Network Rail may also include a charge which reflects the scarcity of capacity and charges may be modified to take account of the cost of environmental effects caused by the operation of the train.

115. There are some exceptions to charging at the cost that is directly incurred as a result of operating the train service. The most significant for the infrastructure costs package is the first exception - in order to obtain full recovery of the costs incurred by the infrastructure manager, the infrastructure manager may, with our approval, if the market can bear this, levy mark-ups on the basis of efficient, transparent and non-discriminatory principles, while guaranteeing optimal competitiveness of rail market segments. The level of charges shall not, however, exclude the use of infrastructure by market segments which can pay at least the cost that is directly incurred as a result of operating the railway service, plus a rate of return which the market can bear.

116. Alternatively, for specific future investment projects, or specific investment projects that have been completed after 1988, the infrastructure manager may set or continue to set higher charges on the basis of the long-term costs of such projects if they increase efficiency or cost-effectiveness or both and could not otherwise be or have been undertaken. The scope of the infrastructure costs package is primarily to understand those costs that do not vary directly with an additional train service. We therefore expect the two exceptions described above to be important if we decide to pass any of these costs on in charges.

117. The conditions under which those exceptions can be used are described above and in more detail in the Directive. If we continue to develop this package, the detailed options proposed at a later stage will need to be checked thoroughly against the conditions required to meet an exception from charging at the cost that is directly incurred as a result of operating the train service.

118. When we have further defined options to assess, we will also ensure we consider all factors that may affect our statutory duties which are laid out in full in Section 4 of the Railways Act 1993. Consideration of many of the duties has been included above in the relevant sections of the analysis but this is limited due to the broad definition of the package at this stage.

119. Similarly, we will also ensure full compliance with the Regulatory Enforcement and Sanctions Act 2008 and the Equality Act 2010. These are explained in Annex D.

F. Sensitivity analysis: alternative states of the world

Government funding

120. The example in figures 6 and 7 showed that, while a charging methodology based on avoidable costs could lead to a significant reallocation of costs between operators in charges, the network grant in its current form would limit the extent to which this would affect the overall level charges paid by individual operators.

121. But as discussed previously, recent UK Government announcements suggest it is considering changing how it funds the industry, and specifically the network grant.

122. Reforming the network grant could increase transparency to the industry and taxpayer about what drives cost on the network. Governments might also choose to increase exposure of operators to costs through charging by reducing the network grant. Although this would likely be netted off through the franchise subsidies and premia, franchised operators would still be exposed to the incentives imposed by the charges, and in this scenario, we could expect substantially bigger impacts as a result of implementing this option.

State of the world 1: More on-rail competition, low franchise protection

123. More on-rail competition means having more scope for open access services through less specified and protected franchises.

124. The extent to which cost package will be able to incentivise network cost savings in the rail industry will depend on the level of exposure of the franchised operators to the new charges. Under existing franchise agreements, franchised operators are held harmless to within-franchise changes made to the structure or level of track access charges at Periodic

Review.[18] This means that, at least in the short-term, the impact on franchised operators' incentives to reduce Network Rail's costs will be muted.

125. A change to franchise protections would greatly increase the magnitude of all of the impacts described above. For example, if operators had a degree of exposure to charges this would introduce the potential for the costs package (sub-option 2) to have a range of effects, including:

- Providing incentives to make better use of the network, either through deciding to change their use where franchise flexibility exists, or by working with the franchising authority to make changes that improve overall effectiveness;
- Creating trade-offs between costs and performance, potentially increasing operators' operating costs in order to reduce system-wide costs (for example – reducing dwell times);
- Increasing scrutiny of Network Rail and improving the quality of the regulatory process;
- Providing incentives for franchised operators to engage with the cost attribution and calculation of charges. This would ensure that the analysis incorporates the widest range of industry expertise.

State of the world 2: On-rail competition via flexible franchising

126. In the current state of the world, franchises are highly specified, and therefore franchised operators have a limited ability to respond directly to the price signals of track access charges immediately, rather they may have to work with the franchising authority to effect any changes on the basis of changes to charges, and the increased length and complexity of such a process may mean the benefits may have to be larger for it to be worthwhile to do so. Increased flexibility of franchise specification would therefore increase the impacts of the infrastructure costs package, by giving franchised operators the ability to respond more directly to incentives.

State of the world 3: More highly specified franchises

127. This state of the world is likely to deliver even fewer benefits relative to the current state of the world. Franchises are already highly specified, with little scope to adjust their services, and under this state of the world there would be less or no scope to make any changes to franchises.

[18] Section 9 or Clause 18.1 of the franchise agreements holds franchised operators harmless to the changes in charges during Periodic Review. The exception to this is EC4T, to which franchised operators are completely exposed.

State of the world 4: Freight protection/subsidy

128. Rail freight is currently protected from full exposure to track access charges, most significantly because it does not have to pay the FTAC. A charging structure which could be developed from the infrastructure costs package could allocate a lot more costs to freight, potentially damaging the rail freight's ability to compete with other modes. Because of this, ORR would have to strongly consider the degree to which freight could be exposed to the new charging structure.

129. If a new system of freight protection were introduced, which made freight more resilient to the impacts of track access charges while allowing them to be more fully exposed to them, for example in the form of direct government subsidy, ORR would have a lot more freedom to expose freight to cost-reflective charges, strengthening the price signals and incentives the package could deliver.

State of the world 6: Change in approach to capacity allocation

130. The administrative process used to allocate capacity means that Network Rail would not be able to respond to incentives delivered through a more cost-reflective charging regime. A more analytical or market-based approach to capacity allocation, would increase the scope for charges and incentives to ensure a more efficient allocation.

State of the world 7: More regional decision making

131. See the section on the impacts of sub-option 1. Better cost attribution would reduce distortions between regions and enable regional decision makers to make informed decision about the investment in and management of the rail network.