

PR23: Impact assessment on capping / phasing-in VUC increases for freight and charter in CP7

June 2023

Policy area	VUC – capping / phasing-in in CP7
<p>Background</p>	<p>The variable usage charge (VUC) is a charge designed to recover the operating, maintenance and renewal costs that vary with small (or marginal) changes in traffic¹. It does not reflect the cost of providing or changing the capability or capacity of the network.</p> <p>Under the existing VUC methodology, the VUC recovers variable wear-and-tear costs relating to three types of activity: track, civil engineering, and signalling. Maintenance and renewals spend on these assets comprises around a quarter of Network Rail’s total OSMR (operations, support, maintenance and renewals) expenditure. Of these assets, track wear and tear costs make up around 85% of the expenditure recovered through this charge.</p> <p>The VUC is disaggregated by vehicle class and, in the case of freight services, by commodity. Typically, heavier and faster vehicles incur a higher VUC, reflecting the relatively higher levels of damage that they cause to the network. The rates are averaged across the network, resulting in a single price for each permutation of vehicle type and commodity across the network.</p> <p>Network Rail recalibrates the VUC at each periodic review based on the latest assumptions about maintenance and renewal costs, efficiency assumptions and traffic forecasts, as well as any agreed changes to the methodology for</p>

¹ In practice, rail infrastructure operating costs are widely understood not to vary materially with traffic, and the charge was set in CP4 to recover variable maintenance and renewal costs only.

	<p>calculating the charge. This generally results in changes to individual VUC rates to reflect the latest evidence on the estimated wear-and-tear costs that vary with traffic.</p> <p>In PR18, following Network Rail’s recalibration of the charge, we decided to phase in the increases in VUC for freight and charter services that were due to take place at the start of CP6. This was because these operators would have otherwise faced a large increase in their charges. Under this capping / phasing-in policy, the VUC was set to increase (in real terms) at a uniform rate for the last three years of CP6 and throughout CP7, to reach full cost reflectivity by the end of CP7.</p> <p>This policy aimed to strike a balance between stability and predictability, affordability for the market segments in question, and full cost-reflectivity.</p>
<p>Proposed change to charging framework being considered.</p>	<p>In our October 2022 conclusions document, we said that we remain minded to retain the existing VUC phasing-in policy set in PR18 (as described above). However, we said we will review this policy at the PR23 recalibration stage. If the recalibration exercise results in significant changes in cost-reflective VUC rates at the end of CP7, we would review our position.</p> <p>Network Rail has now carried out its recalibration of the VUC. This exercise indicates that cost-reflective (i.e. uncapped) VUC rates are set to increase compared to CP6. At this stage, the average increase in all VUC rates is expected to be around 9% - over and above any increases that are due to CPI inflation. We have estimated the average real terms increase for passenger rates to be around 7%, the average increase for freight rates to be around 13%, and the average increase for charter rates to be around 9%. Furthermore, there is considerable variation in the increases in individual VUC rates, as the charge is broken down by vehicle class and (for freight) commodity.</p> <p>We are continuing to work with Network Rail to understand the drivers of this increase in rates. Furthermore, the VUC recalibration will also be affected by some draft decisions we have made as part of our PR23 draft determination. As such, it should be noted that these figures remain subject to change following our draft determination, as Network Rail refines and updates the recalibration exercise.</p> <p>Nevertheless, in light of the likely increase in cost-reflective VUC rates for PR23, we have reconsidered our existing capping / phasing-in policy for freight and charter operators. The rest of this impact assessment sets out our assessment of the viable options and their impacts on affected parties.</p> <p>We note that we have separately considered the impacts of recalibrated VUC rates on passenger operators, but we do not consider that it gives us reason to introduce any capping arrangements. Our assessment of this group of operators is set out in our PR23 draft determination: policy position on access charges document, so is not covered in this impact assessment.</p>

Options

We have considered the impacts of two options for our capping / phasing-in policy for freight and charter VUC rates in CP7:

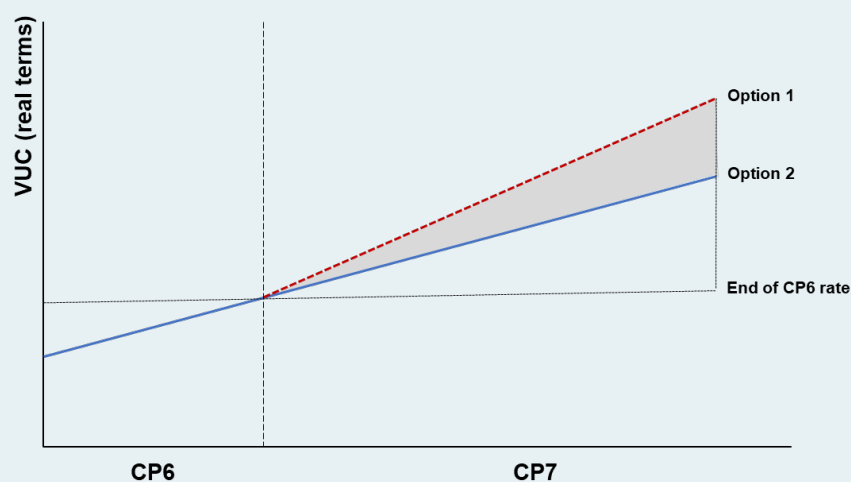
- 1) **Option 1: Retain the existing VUC phasing-in policy** set in PR18. Under this option, VUC rates would increase on a straight-line trajectory to reach the new (higher) uncapped rates, consistent with Network Rail's PR23 recalibration exercise, by the final year of CP7. This is consistent with our minded-to position in our October 2022 conclusions document.
- 2) **Option 2: Maintain the existing trajectory of VUC increases** as envisaged when we set our capping / phasing-in policy in PR18. Under this option, VUC rates would reach the level of cost-reflective rates calculated in PR18, by the final year of CP7.

Figure 1 below compares the implied trajectory of average increases in VUC rates under these two options (note the diagram is illustrative and not to scale). As shown in Figure 1, option 2 would involve a lower increase in average VUC rates over the course of CP7.

We estimate the total average increase in freight VUC rates (between the end of CP6 and the final year of CP7) under option 1 would be 33%, compared to 18% under option 2. The average annual increases would be 5.8% and 3.3% respectively².

For charter rates, we estimate the average increase in VUC rates over the course of CP7 would be around 21% under option 1 and 11% under option 2. The average annual increases would be 3.9% and 2.1% respectively.

Figure 1: Illustration of phase-in profiles for VUC rates subject to capping



We have considered these options in the context of the Railways (Access, Management and Licensing of Railway Undertakings) Regulations 2016 and

² We note that these estimates – and related estimates presented here – are based on Network Rail's SBP freight forecasts for CP7, which we understand may be refined at a commodity level between now and our final determination.

the Commission Implementing Regulation (EU 2015/909). Our interpretation of this legislation is that costs directly incurred have to be recovered from train operators, but we are satisfied that we have the flexibility to allow for changes to be brought in over a period of time (i.e. the charge can be capped / phased in). However, such capping / phasing-in must not be open-ended or indefinite; there must come a time when direct costs are fully recovered, and our decision should be credible over time and not, for example, imply an extremely unlikely change in charges at the next review. Any capping / phasing-in needs to be justified against ORR's statutory Section 4 duties (as discussed in more detail below).

We consider that both these options would be consistent with the Regulations, as they both move the VUC closer to recovering the full wear-and-tear costs of freight usage of the network. In the case of option 2, the remaining caps that apply to VUC rates would be unwound over CP8. As such, it keeps freight users on a clear pathway to paying the full directly incurred cost of network use.

Options not considered

The option of maintaining all VUC rates at CP6 exit levels in real terms for CP7 was not examined in detail because it was not clear that this would be consistent with the requirements of the regulations.

Also not examined in detail was setting all freight and charter VUC rates at their uncapped (i.e. fully-cost reflective) level from the start of CP7. In PR18, we set a trajectory for freight and charter VUCs to reflect the full costs of wear-and-tear on the network towards the end of CP7. Given that cost-reflective rates are now set to increase, relative to when we set this trajectory in PR18, we do not consider that it would be appropriate to bring forward the date at which directly incurred costs would be recovered in full.

Key relevant considerations

In assessing these options, and reflecting our statutory Section 4 duties, we have had particular regard to the following considerations which we consider are relevant to this issue:

- Better use of the network i.e. ensuring there are strong incentives for the network to be used as efficiently as possible over the long term. A cost-reflective VUC will encourage operators to invest in track-friendly vehicles, and only to use the network where the marginal benefit is greater than or equal to the marginal cost. This is relevant to our duties to promote the use of the network, and promote efficiency and economy on the part of persons providing railway services.
- Impact on funding: All other things equal, the use of capping / phasing-in will reduce the variable charges income received by Network Rail. This is relevant to our duties to have regard to the funds available to the Secretary of State (and to Scottish Ministers' expenditure) for the purpose of railway services, and to not render it unduly difficult for Network Rail to finance its activities.

- Supporting rail sector growth and stability: This is relevant to our duties to protect the interests of users of railway services, and to enable persons providing railway services to plan the future of their businesses with a reasonable degree of assurance.

Additionally, we have also considered the following wider objectives³:

- Funders' objectives for the railway in PR23, including as articulated in their HLOS documents.
- Promoting positive wider external impacts, e.g. in relation to the environment.

In considering these impacts, we have drawn on updated evidence from MDS Transmodal (MDST) on the impact of higher track access charges on rail freight volumes. As part of PR23, MDST previously produced estimates of these impacts on a commodity-by-commodity basis, and we published a [report](#) summarising this work in March 2022. We have since commissioned MDST to update its March 2022 study to reflect the latest available information on the costs of transporting goods by different transport modes. MDST's [revised report](#) is published alongside our draft determination.

Impacts on affected parties

(1) Network Rail

Impact on funding

Both options 1 and options 2 mean that the VUC will recover less than the estimated full directly incurred cost of network use by freight and charter operators. However, we do not consider either option would make it unduly difficult for Network Rail to finance its activities, particularly as Network Rail's Strategic Business Plan (SBP) has been based on a flat (real terms) income assumption for VUCs. This means that under option 2, Network Rail will receive around £41 million *more* in freight VUC income, relative to its planning assumptions⁴. For option 1, we estimate the additional income would be around £77 million.

We recognise that option 2 would reduce the forecast income that Network Rail receives through this charge, relative to option 1. There is therefore a funding impact of this option, which can be viewed largely in terms of foregoing additional income. However, the estimated magnitude of this impact (around £36 million over the whole of CP7) is very small in the context of the

³ In PR18, we also considered impacts on the competitiveness of operators of different VUC phasing-in options e.g. in terms of a reduction in the number of suppliers in the market. We consider the risk to competition of both options assessed here to be low, as they both allow a significant transitional period while higher VUC rates are phased in, which allows operators time to adjust. Furthermore, operators have been aware since PR18 that VUC rates are set to increase in real terms in CP7.

⁴ This does not include additional VUC income from charter operators, but charter VUC income is generally around 1% of freight VUC income, so we consider this would be negligible and not materially affect the estimates presented here.

total Statements of Funds Available and Network Rail's overall funding envelope.

Incentives to add traffic to the network

The VUC can affect the incentives on Network Rail to accommodate additional traffic. To the extent that the VUC income from extra traffic is below the additional costs incurred, this may discourage Network Rail from supporting growth of relevant traffic types.

We considered this potential effect in PR18, but concluded that it was unlikely to be a material consideration when considering capping VUC rates, so we did not consider it further as part of our [PR18 impact assessment](#) in relation to capping / phasing-in of VUC increases. We consider that the reasons that we took into account in coming to that view remain relevant now. As such, at this stage, our view on the materiality of this impact remains unchanged.

(2) Funders

Impact on Secretary of State (SoS) and Scottish Minister funds

As explained above, option 2 would reduce the VUC income that Network Rail receives from freight and charter operators, relative to option 1. We estimate the magnitude of this would be around £36 million over the whole of CP7, of which around £1.7 million relates to lower income for Network Rail Scotland.

For a given level of activity, this would increase the funding from other sources (such as the SoS or Scottish Ministers) that would need to be diverted to remedial maintenance and renewal activities. However, for the reasons explained above, option 2 would not trigger additional funding requirements in respect of SoS funds beyond those which have been set out in the Statement of Funds Available (on which Network Rail's SBP is based).

Funders' objectives for the railway

We consider that option 2 will more effectively support funders' objectives in respect of rail freight growth and development than option 1.

In particular, funders' HLOSs have set out a specific requirement for targets for freight growth over CP7 (and in the case of the network in Scotland, to facilitate net growth in CP7 of 8.7% net tonne kilometres in rail freight). Network Rail has since developed a stretching yet realistic set of freight growth forecasts for CP7⁵. The basis for these forecasts assumes that VUC rates will increase in line with the trajectory under option 2, so this option is consistent with these forecasts.

The updated evidence provided by MDST on the impacts of higher access charges indicates that, all other things equal, it would be harder to achieve these targets under the phase-in profile shown in option 1. This is because there would be a larger than expected reduction in rail freight volumes in response to the higher VUC rates for nearly all commodities – including the two most significant commodities by volume (intermodal and construction

⁵ For England and Wales as a whole, Network Rail's freight growth forecast is 7.5%.

materials). This is set out in more detail in the next section of this impact assessment.

We also note that, in response to our April 2022 PR23 consultation on Network Rail's charging framework, DfT has stated its support for maintaining the existing phasing in of VUC increases – subject to further review later in PR23 – which it said reflects the Government's strong support for supporting the rail freight industry to maximise its economic and environmental benefits. Transport Scotland said that the VUC capping / phasing-in policy must be kept under review to ensure that it does not result in modal shift in the wrong direction.

(3) Freight operators

Better use of the network

A cost-reflective VUC means that, in broad terms, the price paid by operators for access to the network will equal the marginal cost of providing that access. All other things equal, this will support our duties to promote the use of the network, and promote efficiency and economy on the part of persons providing railway services. This is for two main reasons:

- Firstly, by ensuring that freight operators take the full directly incurred costs of service into account when using the network, it incentivises operators only to use the network where the marginal benefit is greater than or equal to the marginal cost of network use.

Under option 2, VUC rates would still not be fully reflective of the costs imposed by the operator on the network by the end of CP7 (albeit the deviation from cost-reflectivity would be relatively moderate – we estimate that VUC rates under option 2 would be recovering around 89% of total directly incurred costs in the final year of CP7). This would prolong the period during which operators may run services for which the marginal benefits are less than the marginal costs. As option 1 moves VUC rates to the latest estimate of cost-reflective VUC rates sooner than option 2 (i.e. by the end of CP7), it would be expected to support more efficient network use.

- Secondly, by ensuring that the cost of network use fully reflects the relative wear-and-tear caused by different types of vehicle, it encourages operators to invest in track-friendly vehicles (and by extension the development of more track-friendly vehicles). Having said this:
 - The way that caps would continue to apply under option 2 still work to broadly preserve the relativities in the cost of network use between different vehicle types. This means that, even under option 2, there are near-term benefits to operators from using more track-friendly vehicles.
 - As noted in PR18, the strength of financial incentives to invest in track-friendly vehicles is also likely to depend upon expectations about future levels of the VUC, rather than being principally determined by near-term pricing. As set out above, under option 2,

VUC rates would need to continue increasing in CP8 to eventually recover full directly incurred costs⁶.

As such, the benefits of option 1 over option 2 in terms of incentivising more track-friendly network use may be limited in practice (particularly if there are some constraints on how quickly operators can respond to those incentives e.g. due to procurement timeframes or lack of availability of track friendly rolling stock).

Rail sector growth and stability

We have assessed this factor principally by considering the likely impact under each option of higher VUCs on rail freight volumes – drawing on the updated evidence provided by MDST on the sensitivity of freight volumes to track access charges. This updated evidence indicates the following:

- For option 2, the impact on rail freight volumes is broadly in line with the expected impacts we considered when we developed this policy as part of PR18. The estimated volume impacts for an increase in VUC rates of this level are set out in MDST's report accompanying our draft determination (scenario 1). The maximum estimated impact is a reduction in tonne kms of 3.8%, for the construction sector. This impact is slightly lower, compared to the estimate that MDST produced in March 2022 (4.1%). This is primarily because MDST's updated (forward-looking) assumptions for fuel costs mean that rail is expected to be more competitive with respect to road. The impacts for other commodities have not changed significantly, other than for general merchandise where the impact on volumes is now forecast to be 3.2% rather than 2.3%, but the market for this commodity is relatively small.
- Under option 1, where there is a steeper increase in VUC rates, the expected impact on freight volumes by the end of CP7 would be larger. MDST has not modelled a scenario consistent with the increases in cost-reflective VUC rates that result from Network Rail's recalibration exercise. However, most commodities would see a further increase in VUC rates of between 10% and 20%, i.e. between scenarios 3 and 2 in MDST's latest report⁷. These scenarios can therefore provide a range for the likely impacts on a commodity-by-commodity basis. We have used these scenarios to derive estimated impacts on volumes, using a simple linear interpolation where the average increase in VUC rates falls between 10% and 20%. These are shown in Table 1 below.

⁶ The precise profile of increase would be subject to the recalibration of the VUC in the next periodic review.

⁷ The scenarios modelled by MDST were: (1) An increase in VUC in line with ORR's existing capping and phasing-in policy, such that this charge reaches cost-reflective levels as calculated in PR18; (2) VUC rates increasing by +20% from scenario 1; and (3) VUC rates increasing by +10% from scenario 1.

Table 1: Estimated impact on tonne kms of VUC increases under options 1 and 2 (2028-29)

Commodity	Estimated impact (option 1)	Estimated impact (option 2) ⁴	Incremental impact of option 1 over option 2
Intermodal	4.0% ¹	1.4%	2.6%
Automotive	2.7% ²	0.5%	2.2%
Construction materials	6.2% ³	3.8%	2.4%
Domestic waste	0.0% ²	0.0%	0.0%
General merchandise	> 6.6% ²	3.2%	> 3.4%
Metals	3.6% ¹	2.0%	1.6%
Petro / chemicals / industrial minerals	2.1% ¹	0.8%	1.3%

1. Based on simple linear interpolation between MDST's scenarios 3 and 2.
2. Based on MDST's scenario 2 (20% increase in cost-reflective rate). The estimated average increase in cost-reflective rates for general merchandise is greater than 20%, so the impact is presented as a lower bound.
3. Based on MDST's scenario 3 (10% increase in cost-reflective rate).
4. Based on MDST's revised table 8 (scenario 1).

For the largest two commodities (intermodal and construction materials), the estimated impacts for option 1 are 4.0% and 6.2% respectively, compared with 1.4% and 3.8% under option 2. For some other commodities, the estimated demand impacts associated with an increase in VUC rates to these levels are more than twice as much as those that would be expected compared with option 2.

These impacts should be seen in the context of other changes in the cost of rail use. In particular, traction electricity rates are significantly higher now than when we set our capping / phasing-in policy in PR18, and EAUC rates are also set to increase in CP7. While these factors are only relevant to electrified freight services, which is a relatively small proportion of freight traffic⁸, they nevertheless have the potential to affect the competitiveness of rail freight more generally.

Having said this, the absolute magnitude of estimated demand impacts under both options remains less than 10% in all cases. Furthermore, this analysis does not assume any change in freight operators' rolling stock to mitigate the increase in VUC, which could serve to limit the increase in charges on freight volumes. It also assumes that the freight market has fully responded to changes in costs, which may take some years in practice (as discussed in

⁸ Electrified traction accounted for 11% of total freight train kilometres in 2022-23. Source: ORR data portal.

	<p>section 1.3 of MDST’s report). As such, these estimates may overstate the total impact on freight volumes for both options.</p>
<p>(4) Charter operators</p>	<p>In PR18, the capping / phasing-in policy that we set for charter operators meant that average increases in charter rates over CP6 were capped at 5% from the end of CP5 to the final year of CP6.</p> <p>Based on Network Rail’s latest recalibration outputs, we estimate that the average increase under a revised trajectory to achieve full cost-reflectivity by the end of CP7 would be around 21% (option 1), compared to around 11% if rates instead increased to reach the cost-reflective levels calculated in PR18 (option 2). The average annual increases would be 3.9% and 2.1% respectively.</p> <p>We have less information on the potential impact these options would have on charter operators, compared to freight operators, particularly as the level of profitability of certain operators and services varies significantly, reflecting the varied nature of charter operations. But in general, this impact would depend on the sensitivity of demand for charter services to changes in prices. Given that charter operators run non-regular bespoke services mainly for tourist / leisure purposes, demand is expected to be relatively elastic (e.g. compared with commuter routes) and so changes in prices may result in a material reduction in passenger demand. This would limit the ability of charter operators to pass higher charges onto end users, and could therefore have implications for the tourism industry, particularly in the specific locales/regions in which these services are operated.</p>
<p>(5) Other impacts</p>	<p>An increase in VUC rates will, all other things equal, lead to a shift in freight traffic from rail to road. This may generate negative environmental impacts, create road congestion (with negative implications for productivity) and have safety implications (based on the assumption that road freight is less safe than rail freight).</p> <p>As explained above, in light of the updated evidence provided by MDST on the impacts of higher access charges, we expect that option 2 will limit the degree of switching of rail freight volumes from rail to road (relative to option 1). This is particularly the case for the construction materials sector, which accounts for around 30% of all freight traffic moved⁹; MDST estimates that option 2 would (all other things equal) lead to a 4.2% fall in tonnes (3.8% fall in tonne kms) in the final year of CP7, compared to a fall of 6.9% (6.2%) if rates were to increase along the lines of option 1 (see table 1 above). This is equivalent to around 880,000 tonnes fewer moving to road under option 2 by the final year of CP7 for this commodity – which would be likely to generate significant benefits for the environment and in terms of avoided congestion.</p>

⁹ Based on 2022-23 volumes, as reported in ORR’s [June 2023 Freight rail usage and performance report](#).

Recommendation and next steps

Recommendation	<p>Based on our assessment of options 1 and 2 set out above:</p> <ul style="list-style-type: none"> • Both options involve deviations from cost-reflective (i.e. uncapped) levels of VUC rates, which may affect operators' incentives around use of the network and choice of rolling stock (noting these are generally decisions taken over long timeframes). This impact would be larger and more prolonged under option 2, although this option still moves the VUC closer to recovering total directly incurred costs from freight network usage, and keeps rates on a transition profile to approach full cost reflectivity by the end of CP8. • Under both options, Network Rail will receive more VUC income relative to its SBP assumptions. Network Rail's forecast income from this charge would be lower under option 2 than option 1, but we estimate this would be very small in the context of the total Statements of Funds Available and Network Rail's overall funding envelope. • Both options would avoid a sudden increase in VUC rates, to provide both freight and charter operators with some time to adjust. Relative to option 1, option 2 would limit the impact on rail freight volumes of increases in this charge, and therefore on the growth and stability of the freight sector. In doing so, it would also better support funders' freight growth objectives as articulated in their HLOSs; and may generate wider benefits for the environment, productivity benefits from lower congestion, and potential safety benefits. <p>Overall, we consider that option 2 would limit the most significant impacts of the phasing-in of increases in the VUC for freight and charter operators; funders' objectives (particularly in respect of freight growth); and other areas such as the environment, while preserving the beneficial incentive properties of this charge by ensuring that rates continue to move closer to full cost-reflectivity during CP7.</p> <p>We therefore intend to continue increasing freight and charter VUC rates over the course of CP7 in line with the profile set out in option 2, i.e. at the current rate of increase set in PR18. This means that by the final year of CP7, VUC rates would be equivalent to the cost-reflective rates that were calculated in PR18.</p> <p>The remaining caps that apply to freight and charter VUC rates would then be unwound over the course of CP8.</p>
Next steps	<p>The recalibration process for the VUC is continuing and we will keep our draft decisions under review, particularly if there are major changes in cost-reflective rates that materially affects the analysis presented here.</p> <p>Network Rail will publish its price list in July 2023. This will reflect our revised proposals for phasing-in of further VUC increases for freight and charter operators. We intend to engage with industry shortly after the publication of</p>

draft price lists, so that stakeholders have an opportunity to fully understand the implications of our policy before submitting responses to our draft determination.

We will then confirm our final decisions on this policy in our final determination in October 2023.



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