



# PR18: Variable usage charge - final impact assessment on capping/phasing-in the VUC in CP6

October 2018

## Purpose of this document

This impact assessment supports our 2018 periodic review final determination supplementary document ‘the VUC in control period 6 - [conclusions](#)’. The assessment of the options contained within this document has been updated to reflect points raised in response to our June 2018 consultation.

This document details the analysis completed to consider the case for capping/phasing-in the variable usage charge (VUC) in control period 6 (CP6) and assesses three broad options.

In our draft determination consultation we proposed that a variant of the transition profile outlined in option 2 should be applied to freight and charter operators. In the absence of this policy, these operator types would otherwise see a material increase in their total variable charges in CP6<sup>1</sup>.

Policy	Variable Usage Charge (VUC)
<b>Policy area</b>	The level of the VUC for CP6
<b>Background</b>	The VUC is a charge designed to recover the operating <sup>2</sup> , maintenance and renewal costs that vary with marginal changes in traffic. It does not reflect the costs of providing or changing the capability or capacity of the network.

<sup>1</sup> CP6 total variable charges include the variable usage charge, and charges for electricity assets and energy. In CP5 there is also a capacity charge and coal spillage charge, which will not apply in CP6.

<sup>2</sup> 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.

The VUC recovers costs relating to three broad cost elements: track, civil engineering and signalling. Track 'wear and tear' costs make up c.85% of the charge. The VUC is differentiated by vehicle class to reflect the significant variation in infrastructure wear and tear costs associated with different vehicle characteristics, e.g. vehicle operating speed and axle weight. In the case of freight, the charge is further disaggregated by commodity type, reflecting the different axle loads associated with different commodities. The rates are averaged across the network as a whole, resulting in a single Great Britain-wide price for each permutation of vehicle type and commodity

**Which of the PR18 outcomes does this charge/incentive deliver against?**

The network is better used:

- Ensure operators take costs of service into account when using the network.

The network is efficient:

- People who can make efficiency improvements care about efficiency.
- Ensure that Network Rail can recover its total costs.

There are also general objectives and criteria to consider:

- Promote positive impacts on funders/customers.
- Promote competition on the railway.
- Promote positive wider external impacts.
- Limit transitional impacts (note: to help demonstrate our thinking we split this into two categories- 'low volatility for operators' and 'deliverability').
- Limit transaction costs.

**Problem under consideration with the current charge/incentive**

There is upward pressure on the VUC following increases in Network Rail's costs. Analysis by Network Rail shows that, without policy intervention, the VUC will increase significantly for all operator types. This is of particular concern for non-franchised passenger and freight operators who are exposed to changes in charge levels.

We have considered the VUC increase in accordance with the Railways (Access, Management and Licensing of Railway Undertakings) Regulations 2016 and the Commission Implementing Regulation (EU 2015/909). Our interpretation of this legislation is that costs directly incurred must be recovered from train operators but we are satisfied that we have the flexibility to allow for changes to the level of the VUC such that it can be

brought in over a period of time (i.e. the charge can be capped/phased in). However, any capping/phasing-in must not be open-ended or indefinite; there must come a time when full costs are charged. Furthermore, our decision should be credible over time and not, for example, imply an extremely unlikely change in charges at the next periodic review. Any capping/phasing-in needs to be justified against ORR's statutory duties.

### **What is the scale of the issue and who is affected?**

#### **Below we consider the impact of the potential increase in the VUC in CP6 on different parties:**

When considering the impact of an increase in the VUC on train operators, it is important to consider changes to track access charges 'in the round'. In particular, we note the PR18 conclusions to abolish the capacity charge and coal spillage charges.

**Franchised operators** are not exposed to changes in charges as a result of ORR's periodic review and are not considered further in this impact assessment. However, it is noted that, in the long-run, as franchises are re-negotiated, a higher VUC will be factored into decision making – i.e. there might be a change in premia or ticket prices.

**Open access operators (OAOs)** will be directly affected financially by the increase in the VUC. Specifically, governments do not hold them neutral to an increase in track access charges, therefore, any increase in the amount paid in charges would see an immediate increase in their cost base. However, our modelling shows the VUC increase will be broadly offset by the removal of the capacity charge. Thus, open access operators are also not considered further in this impact assessment.

**Freight operators** will be directly affected financially by the increase in the VUC, as they are fully exposed to changes in charges. For freight operators, the VUC represents c.80% of their total charges and c.5% of total freight operator costs. For freight operators as a whole, the removal of the capacity charge and the coal spillage charge does not offset the forecast VUC increase. Total variable charges<sup>3</sup> for freight are forecast to increase materially.

The precise impact on freight operators is likely to depend on their business models and the stage of the investment cycle they are in. For example, factors such as whether or not freight operators choose to outright purchase or lease rolling stock, and the length of any leasing contracts is likely to affect the incentive to adapt their cost base over time following an increase in the current and expected VUC. Nonetheless, in principle, we might expect some of the following impacts:

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<sup>3</sup> 'Total variable charges' - we have taken to include the VUC, the electrification usage charge (EUAC), the traction electricity charge (EC4T), the capacity charge and the coal spillage charge.

**Price and volume effects** – Should the increased VUC rate be passed through to customers, this price increase will (depending on the elasticities for these services) have an impact on the volume of services operated. For example, analysis by MDS Transmodal for PR13 found that a 50% increase in the VUC would result in a 4% reduction in total tonnes transported, and a 4.6% reduction in total tonne-kilometres.

The size of any volume effect described above would depend on the extent to which freight operators pass on the cost increase as higher prices. Information from one response to our previous charges and incentives consultation<sup>4</sup> suggests the degree of pass-on could be quite high. This response states that freight operators have a five-year rolling average profit margin of 2.6% and that for the financial year 2015/16 freight operators overall incurred a loss in excess of £100m. Thus, any cost increases that are not passed on would put further pressure on profit margins and could deter private investment in the sector. This suggests that the ability of freight operators to absorb a significant increase in the VUC is likely to be limited. However, freight operators would likely be wary of fully passing on cost increases to end customers. Given the competitive pressures rail freight is under from other transport modes (particularly road) and the relatively high degree of substitutability between these transport modes for certain customers, any cost pass-on could cause customers to switch to other transport modes.

Freight respondents to our June 2018 consultation all noted that an increase in charges will cause the rail freight sector to become less competitive, resulting in modal shift from rail to road.

It is also important to recognise that any price/volume effect could vary significantly by commodity. According to the MDS Transmodal analysis, some commodities would see little to no detrimental impact on tonnes or tonne-kilometres volumes – this includes nuclear and iron ore. However, a higher risk/impact was found for other commodity groups, in particular intermodal, automotive and domestic waste, which could experience volume reductions of 6-7% following an increase in the VUC of 50%. It is notable that two commodities making up approximately two thirds of freight traffic in 2016/17 ('construction material' and 'domestic intermodal') are those with the highest levels of elasticity.

The variability of rate increases across different freight commodities and the potential differing impact on volumes was also a key area of concern for freight respondents to our June 2018 consultation. We have analysed the potential impact of the proposed (draft price list) increases in variable charges in CP6 across the various freight commodity segments. The implied impact of the higher charges on traffic in CP6 was calculated based on each commodity segment's elasticity ([MDST, 2012](#)) and compared to the forecast traffic growth for that commodity segment ([MDST, 2017](#)). The proposed increase in total variable charges is not expected to result in a material contraction of any of the

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<sup>4</sup> [http://orr.gov.uk/data/assets/pdf\\_file/0014/25007/responses-to-pr18-consultation-on-changes-to-charges-and-contractual-incentives-june-2017.pdf](http://orr.gov.uk/data/assets/pdf_file/0014/25007/responses-to-pr18-consultation-on-changes-to-charges-and-contractual-incentives-june-2017.pdf)

freight commodity segments. The phasing-in and capping will prompt higher rail freight volumes than would otherwise occur, while more extensive capping/phasing-in would increase this further.

**Competitiveness** – Several freight organisations responding to our charges and incentives consultation said they compete fiercely on price with road haulage, with one respondent making the point that price - of which charges are a key determinant - is the central consideration for most customers. The higher costs imposed by the VUC uplift could increase rail freight prices and thus cede market share to road haulage companies. This impact is particularly concerning to freight operators, who emphasise the competitive edge road haulage is gaining due to low oil prices and frozen fuel duty rates since 2011. Although rail freight operators have also benefited from these lower fuel costs, fuel costs represent a much higher proportion of overall road haulage costs (circa 40%) than rail freight costs (circa 15%). Furthermore, freight consultation respondents see road haulage as a strong competitor in key potential future growth markets, in particular construction and intermodal (this competitiveness is reflected in the relatively high elasticities discussed above).

Rail freight could also lose out to some degree to feeder shipping, which has seen large-scale investments recently, for example in the Liverpool2 container terminal, which offers feeder services to other UK and European ports.

**Investment** – The VUC increase could also impact investor confidence and future funding within the rail freight industry. It was noted by one freight operator in response to our charges consultation that the industry primarily relies on private sector funding (through shareholders or debt providers). A sudden increase in the VUC could damage investor confidence (due to increased instability and dampening end profitability) and therefore reduce future investment in the sector. In particular, although the increased VUC rate could encourage updates to rolling stock at the margin, potential reductions in funding (and retained earnings) could damage freight operators' abilities to invest in new wagons that are more environmentally friendly, track friendly and reliable. As well as damaging funder expectations, it could also damage customer expectations about the future prospects of the rail freight industry.

**Wider impacts** – There may also be wider detrimental effects as a result of a reduction in rail freight volumes.

One of the key detrimental impacts would be on the **environment**. MDS Transmodal estimated that a doubling of the VUC would see a 4.6% reduction in tonne-kilometres and, if all this lost traffic switched directly to road, this would impose an additional environmental external cost of £51m per year. By the same logic, a 50% uplift in the VUC could result in a net environmental cost due to the shift to road in the order of £25m. Further analysis by MDS Transmodal found that, as a minimum, the increase in environmental external costs due to a shift to road would offset any increase in VUCs for

intermodal, construction, domestic waste and petro-chemical freight. One consultation respondent cited some of the key environmental advantages of rail freight over an equivalent road freight journey as: 76% less CO<sub>2</sub> emissions, 90% less PM<sub>10</sub> emissions and 15 times less NO<sub>x</sub> emissions.

A reduction in rail freight volumes may also have a detrimental impact on **productivity** due to an increase in road congestion.

**Safety** may also be negatively impacted owing to higher accident and casualty rates on road than rail.

One consultation respondent said that many of the positive impacts of rail freight are indirect, suggesting that the total productivity (including reduced congestion) and environmental benefits are worth over £1.6bn to the UK economy each year.

These wider external benefits are not captured within the charging structure and so any increase in the VUC could result in a further divergence between marginal costs and marginal social benefits.

**Charter operators** will be directly affected financially by the increase in the VUC. They are fully exposed to changes in charges and, unlike open access operators, the removal of the capacity charge does not offset the forecast VUC increase. Total variable charges for charter are forecast to increase materially.

The ability of charter operators to pass-on higher costs due to the VUC increase would depend on the sensitivity of demand of end users, i.e. elasticities. 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). Thus any price increase on these routes may result in a material reduction in passenger demand. This could have implications for the tourism industry, particularly in the specific locales/regions in which these services are operated.

**North Yorkshire Moors Railway's services** and **West Coast Railway Company's Jacobite services** are both in possession of fixed access rights (in common with OAOs) but are expected to be impacted by the increase in the VUC in a similar way to charter operators - they are also expected to see material increases in their total variable charges and demand for their services (primarily steam heritage services provided over the summer) is expected to be relatively elastic.

### **Network Rail**

The increase in the VUC would not directly affect Network Rail negatively. The uncapped charge (in conjunction with other charges) is designed to leave Network Rail revenue

neutral to adding new traffic to the network. An increase in the VUC should only reflect the increased maintenance and renewal costs.

Capping/phasing-in of the VUC would reduce the variable charges income received by Network Rail. However, in its March 2018 [letter](#) the Department for Transport (DfT) stated that, as funder and shareholder, it is satisfied that capping the VUC for freight and charter operators at end of CP5 levels would be consistent with the assumptions it made in the Statement of Funds Available (SoFA) and therefore Network Rail should not experience a shortfall in its total income.

In addition, the VUC affects 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. However, it is important to note that:

1. The VUC is a calculation based on increased costs over the longer-term (as, for example, higher use will marginally bring forward the date of renewals modelled over a 35 year horizon). Unless capping is very substantial, the VUC income may still be more than the direct (cash) costs incurred within CP6;
2. Route and SO incentives to accommodate growth are also provided through mechanisms such as the scorecard (with its links to management pay) and wider reputational incentives; and
3. Even in the event that Network Rail decided that it did not want to accommodate traffic as incremental costs were not recovered through variable charges, operators could still appeal to ORR to require Network Rail to do so.

For these reasons we do not consider Network Rail's incentives to add traffic to the network within this impact assessment.

## Funders

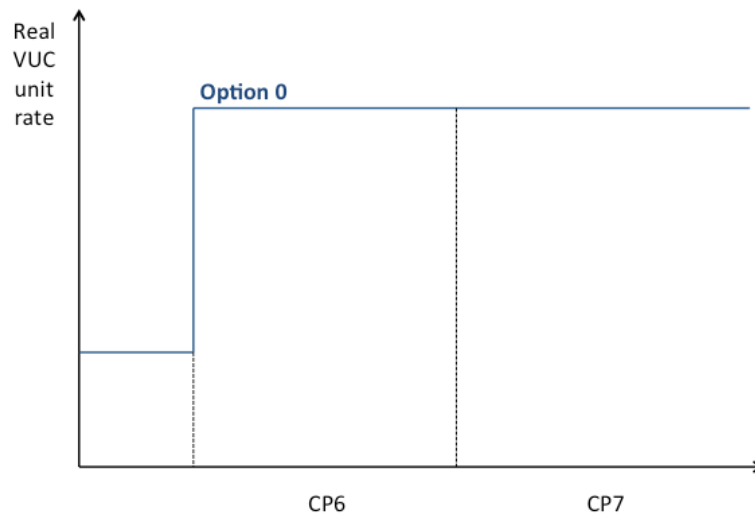
[DfT](#) and [Transport Scotland](#) have stated their support for capping. As outlined above, DfT has stated that capping for charter and freight is consistent with the assumptions made in the SoFA. We therefore consider there to be no material implications for funders and do not consider this issue in our assessment of options.

## Options to be considered

Option 0: Do nothing

The 'do nothing' approach would see the VUC rates increase in full to the uncapped rate at the start of CP6 for all train operators. The evolution of the VUC unit rate would be as follows:

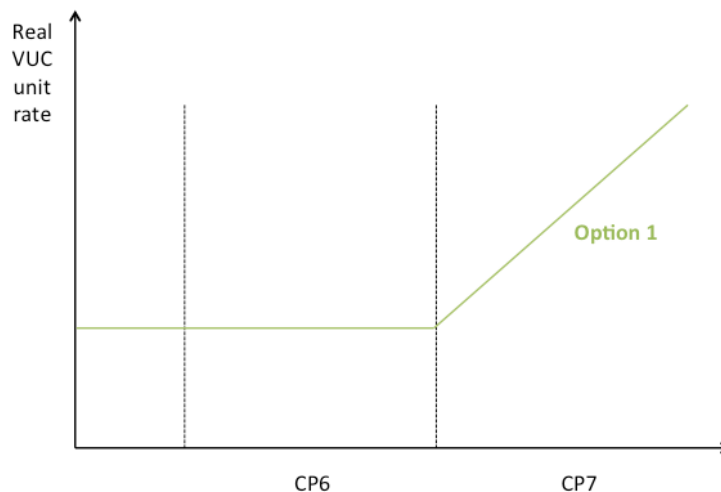




The VUC rate in CP7 will be affected by the recalibration of the charge in PR23.

**Option 1: CP6  
Flat real**

This would see the VUC rates remain flat in real terms (indexed by CPI) during CP6, followed by a straight-line increase to the uncapped level over the course of CP7. The evolution of the VUC unit rate would be as follows:



The exact slope of any transition arrangement in CP7 will be affected by the recalibration of the charge in PR23.

**Option 2:  
Transition**

This approach will see a phased increase from the end of CP5 to uncapped CP6 rates. Such a transition could take a variety of forms, by varying the shape, slope or duration of the transitional phase. The transition could also include a set notice period, e.g. 2 years before charges start to increase.

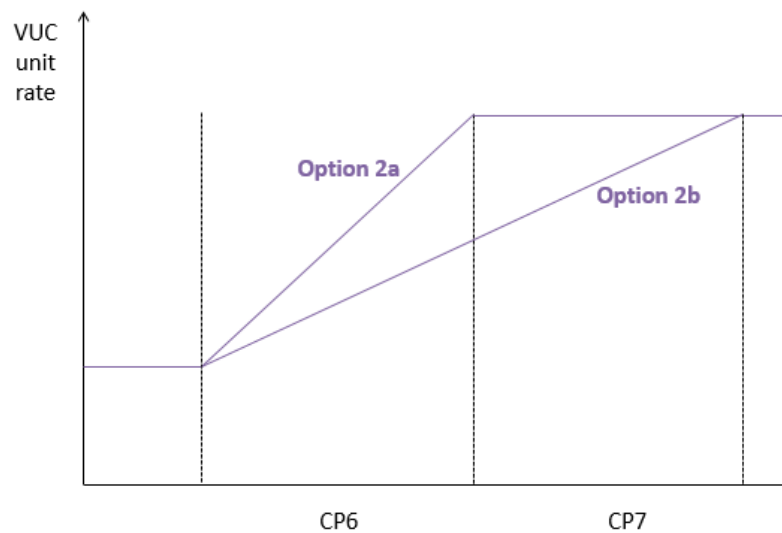


We have considered two sub-options:

- 2a) Transition over one control period
- 2b) Transition over two control periods

The core transition option considered as part of this impact assessment is a straight-line increase in VUC rates to the cost reflective level over the course of CP6 (option 2a). However, we consider that a more 'gradual' approach over a longer time period would also be consistent with legislation (option 2b).

The evolution of the VUC unit rate under options 2a and 2b is as follows:



The exact slope of any transition arrangement in CP7 will be affected by the recalibration of the charge in PR23.

### Option 3: Lump-sum rebate

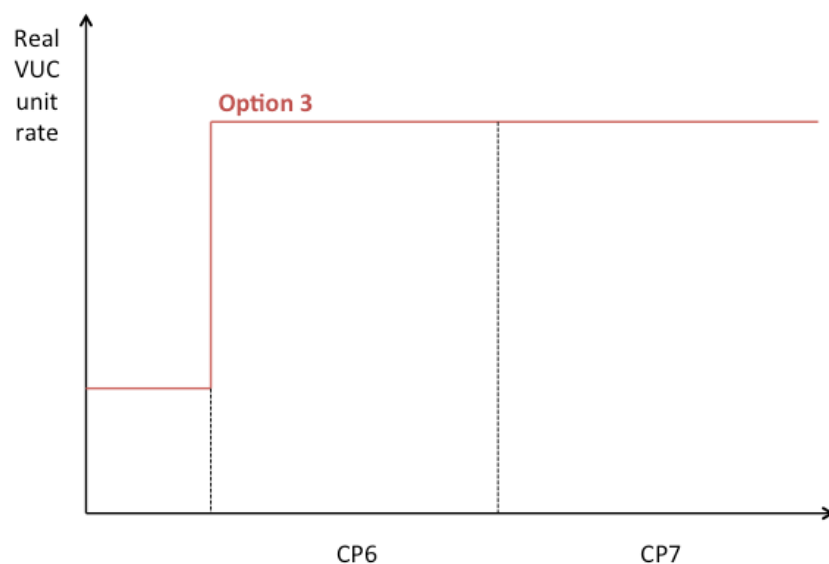
The purpose of Option 3 is to apply new VUC rates to ensure that incentives at the margin reflect updated costs, whilst still taking steps to ensure operators are not immediately exposed in full to the potential implications of a change in rates. Specifically, new VUC charge rates are applied from the beginning of CP6 but a 'lump-sum' rebate is then applied so that operators are no worse off financially at current traffic volumes (for the period for which the rebate applies) as a result of the charge increase. In some ways the approach can be broadly thought of as a refinement to the wash-up applied to the capacity charge in PR13 for freight, OAOs and charter operators.

The reason for applying a full VUC rate is to ensure that decisions are made bearing in mind the new, higher VUC charge rate – this means

that a marginal increase in traffic is now more expensive for the operator and a marginal decrease in traffic induces a greater cost saving for the operator. Both effects are consistent with the fact that a marginal increase (decrease) in traffic imposes greater operating, maintenance and renewal costs (cost savings) on Network Rail than under the previous control period.

The lump-sum rebate will allow operators time for adjusting their rolling stock for services they already run in line with the new incentives created by higher VUC.

In terms of the evolution of the **marginal** VUC unit rate, this option would look exactly as illustrated for the “do nothing” option earlier, i.e.:



However, although identical to the ‘do nothing’ option in terms of the marginal VUC rate, there is a difference in terms of the overall VUC amount paid by operators – i.e. there is a lump-sum rebate to protect against the potential consequences of such a rate increase.

Under such an approach a traffic baseline is set, for example, traffic at the end of CP5. A lump-sum rebate is calculated as the difference between the old and new VUC rates multiplied by the baseline level of traffic. Therefore, it does not vary according to actual volumes.

To demonstrate the principles of the approach it is helpful to consider three scenarios:

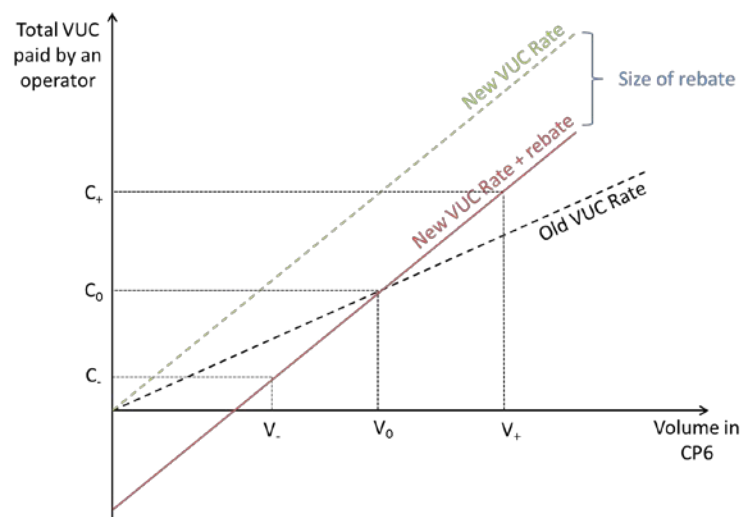
- Fall in traffic below baseline – operators in effect pay less than they would have in CP5 for that volume of traffic.

- Traffic remains at baseline – operators in effect pay the same overall VUC as they would have in CP5 for the same volume of traffic.
- Increase in traffic above baseline – operators in effect pay more than they would have in CP5 for that volume of traffic.

The table below provides three stylised scenarios to explain the impact on operators.

Volume	Old VUC rate	Old VUC total charge	New VUC rate	New VUC total charge (without rebate)	New VUC total charge (with rebate)	'Effective' VUC rate
50 (< baseline)	10	500	15	750	250	5
100 (baseline)	10	1000	15	1500	1000	10
150 (> baseline)	10	1500	15	2250	1750	11.7

The three scenarios could also be illustrated in the form of the following diagram:



The above approach assumes the lump-sum rebate would remain constant during the period (500 within the stylised example above). A variation here would be to reduce the rebate over time – this would not change the marginal incentives of operators, although it would reduce the fall in Network Rail’s revenue and the level of ‘protection’ afforded to operators.

## Assessment of options

The above options have been assessed in a manner informed by the '[Assessment Framework](#)' published alongside our December 2016 'Charges and Incentives' consultation. This framework was developed based on our PR18 objectives.

We do not give a score for Option 0 'do nothing'. Rather we simply discuss the impacts of this approach. For the other options we make use of a qualitative scoring system to indicate how each option performs relative to Option 0 'do nothing'. The qualitative scoring system is as follows:

Score	Interpretation
✓✓	Significantly outperforms 'do nothing' option.
✓	Moderately outperforms 'do nothing' option.
~	No material difference to 'do nothing' option.
✗	Moderately underperforms 'do nothing' option.
✗✗	Significantly underperforms 'do nothing' option.

Note that within a particular option, the scores are not cumulative in a straightforward manner (e.g. a weak score in one area could more than offset strong scores in other areas).

All scores are for CP6 given that, in the longer run, as capping/phasing-in unwinds, the scores will converge.

The scores given to each option are summarised in Appendix A.

## Assessment of Option 0 (Do nothing)

### **Delivery of PR18 outcomes**

#### **The network is better used**

#### **Ensure operators take costs of service into account when using the network:**

This approach will maintain the cost reflectivity of the charge ensuring operators take the full costs of service into account when using the network (i.e. the price paid by operators for access to the network will equal the marginal cost of providing that access).

#### **The network is efficient**

#### **People who can make efficiency improvements care about efficiency:**

The new VUC rate would incentivise more track friendly vehicle use (at the operator level) and development (at ROSCO level) over the longer-term. While operators may face increased incentives to invest in new rolling stock at the margin, there are a number of mechanisms by which investment might be deterred:

- Reduced expected returns from investment in rolling stock due to volume reductions,<sup>5</sup> meaning firms might keep using existing rolling stock (which may possibly have fallen in rental price due to over-supply following a relative volume reduction).
- A sudden VUC increase raises perceptions of regulatory risk in the sector, meaning the promised return from investments has to be greater if funders are going to be willing to invest. This may mean that some lower return investments in new rolling stock no longer go ahead.

Another consideration is that the strength of financial incentives to invest in track-friendly vehicles is likely to depend upon operators' and ROSCOs' expectations about future levels of the VUC, rather than being principally determined by near-term pricing. If operators are unable to respond to those incentives sufficiently quickly the benefits in CP6 would be limited.

A number of respondents to our June 2018 consultation agreed that the ability of operators to respond to near-term pricing signals was limited and should not be overstated given the material asset life of wagons and the significant investment lead-time when securing new vehicles.

#### **Ensure that Network Rail can recover its total costs:**

This option would enable Network Rail to fully recover its costs directly incurred. However, DfT has stated that capping is consistent with the assumptions made in the SoFA and therefore we assume there to be no material impact on recovery of efficient costs.

#### **Delivery of ORR's general objectives**

#### **Promote competition on the railway:**

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<sup>5</sup> This argument assumes there are economies of scale in providing railway services. As such a decline in demand would result in a less than proportionate decline in cost savings, thus affecting operators' profitability.

There is likely to be a detrimental impact on the competitiveness of operators. This could threaten sustainability and lead to a reduction in the number of suppliers in the market, to the detriment of end users in terms of the price, quality and/or availability of services.

Freight operators will be particularly affected given the high percentage of total charges that VUC represents and the competitive pressures they are exposed to from the road haulage sector. As discussed previously, elasticities vary by commodity and the impacts may be particularly acute for commodity types with high sensitivity to price (e.g. intermodal) which also have high growth opportunities.

**Low volatility for operators:**

There will likely be high transitional impacts in terms of the volatility for operators due to a large step change in the level of charges between control periods.

Specifically, operators may be unable to respond to the new VUC level due to factors such as procurement timeframes or lack of availability of track friendly rolling stock. Operators who recently entered new lease agreements or bought rolling stock could be particularly affected by the new higher VUC rates.

We note that 'domestic intermodal' and 'construction' materials, which in 2016/17 made up 64% of freight traffic, are in modally competitive markets.

**Deliverability:**

The 'do nothing' approach will not require significant resource to implement.

**Limit transaction costs:**

There would be minimal transaction costs associated with this option.

**Promote positive wider external impacts:**

The shift from rail freight to road freight 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).

**Promote positive impacts on funders/customers:**

Customers (including freight customers) may face higher prices as well as a reduced service offering, as more marginal routes are no longer operated and transitional impacts put strain on operators. Higher prices will reduce demand for services; in PR13 it was estimated that total freight tonnage would fall in the order of 4% for a 50% increase in VUC (assuming constant elasticity).

Customers would however benefit from improved reliability (fewer delays) due to a less congested network.

DfT has stated that capping is consistent with the assumptions made in the (SoFA and therefore we assume there to be no material impact of this approach on funders.

Assessment of  
Option 1 (Flat  
real)

### **Delivery of PR18 outcomes**

#### **The network is better used**

#### **Ensure operators take costs of service into account when using the network: (xx)**

The delayed increase in VUC could delay the mechanisms which promote better use of the network. For example, during CP6 (and CP7), operators may continue to operate routes for which the marginal benefits are less than the marginal costs as the VUC would not be fully reflective of the costs imposed by the operator on the network.

#### **The network is efficient**

#### **People who can make efficiency improvements care about efficiency: (xx)**

Flat rates would see operators with less incentive to reduce Network Rail costs.

It is worth noting that our interpretation of the legislation is that any capping/phasing-in of the VUC has to be time-limited. Therefore, flat rates in CP6 would necessarily have to be followed by increases in rates in CP7. Given that the strength of financial incentives to invest in track-friendly vehicles is likely to depend upon operators' and ROSCO's expectations about future levels of the VUC (rather than being principally determined by near-term pricing), this raises the potential that awareness of future VUC increases could incentivise rolling stock investment decisions during CP6. However, such investment would be



dependent on the 'glide-path' towards costs directly incurred being credible and there are questions as to whether a period of flat rates will help generate such credibility.

By limiting the short-term financial shock, operators' investments would not suffer from the two mechanisms described earlier. Specifically, there would not be reduced expected returns from investment in rolling stock due to volume reductions and there would be a lower perception of regulatory risk.

### **Ensure that Network Rail can recover its total costs: (~)**

This option would prevent Network Rail from fully recovering its costs directly incurred from operators. However, DfT has stated that capping is consistent with the assumptions made in the SoFA and therefore we assume there to be no material impact on recovery of efficient costs.

### **Delivery of ORR's general objectives**

#### **Promote competition on the railway: (✓)**

Compared to the 'do nothing' option, there are likely to be beneficial impacts on the competitiveness of operators with regards to other modes of transport as a lower VUC leads to lower prices and a higher number of services offered.

Specifically, by allowing a transitional period, operators will have more time to adjust their rolling stock, such that when the full VUC rates do come in they may have already adjusted to more track-friendly vehicles with lower VUC rates. Such a delay may be important, as operators may be locked into existing operational leases or otherwise face high transaction costs of changing their rolling stock. By allowing operators more time to adjust until the full uncapped VUC rates come in, this should allow operators to maintain lower prices to the benefit of their competitiveness.

However, adopting such a flat transition rate for the first control period brings into question the credibility of subsequent increases in rates. Such an approach therefore raises questions as to whether the competition on the network will be based on a false understanding of how rates will change going forward. For this reason we do not score this approach more highly.

#### **Low volatility for operators: (✓✓)**

While we score this option as having strong benefits in terms of limiting transitional impacts, it is worth noting that such a period of 'flat rates' might come at the cost of stakeholders understanding that the VUC will increase in future. This could have impacts on how stakeholders plan their business going forward.

**Deliverability: (~)**

Option 1 will not require significant resource to implement.

**Limit Transaction costs: (~)**

There would be minimal transaction costs associated with this option.

**Promote positive wider external impacts: (✓✓)**

Protecting operators from an immediate VUC increase would limit any potential shift in traffic from rail to road which is expected to deliver external benefits (including environmental benefits, productivity benefits from lower congestion and safety benefits).

We consider this approach would strongly outperform for this objective relative to the 'do nothing' option, by limiting the transition to road freight.

**Promote positive impacts on funders/customers: (✓✓)**

Customers may benefit from lower prices and more services being operated than under the 'do nothing' option.

Negative impacts on certain customers may arise through higher rail congestion and delays than under the 'do nothing' scenario.

In addition, this approach would reduce the VUC income received by Network Rail relative to the 'do nothing' option. However, as Network Rail's business plans were built on the assumption of a flat real VUC, the introduction of a cap can be viewed principally as foregoing additional income and projects that were not included in the February Strategic Business Plan (SBP) baselines.

DfT has stated that capping is consistent with the assumptions made in the SoFA and therefore we assume there to be no material impact of this approach on funders.

Overall, the net effect on customers would be strongly positive relative to the 'do nothing approach'.

Assessment of Transition

Options:

2a) one control period; and

2b) two control periods

### **Delivery of PR18 outcomes**

#### **Ensure operators take costs of service into account when using the network: (2a ✖, 2b ✖)**

The delayed increase in VUC could delay the mechanisms which promote better use of the network. Operators may continue to operate routes for which the marginal benefits are less than the marginal costs and would have less incentive to invest in more track friendly vehicles.

The period of the transition to full cost recovery will determine the extent to which services are run where marginal cost is equal to marginal benefit. The steeper the transition, the sooner operators will be charged in line with marginal costs.

#### **The network is efficient**

#### **People who can make efficiency improvements care about efficiency: (2a ~, 2b ✖)**

The delayed increase in the VUC would dilute incentives for operators to reduce Network Rail's costs relative to the 'do-nothing' approach.

However, as the strength of financial incentives to invest in track-friendly vehicles is likely to depend upon operators' and ROSCOs' expectations about future levels of the VUC, rather than being principally determined by near-term pricing, such a delay could have a limited impact.

In addition, by limiting the short-term financial shock, operators' investments would suffer less from the two mechanisms described earlier (i.e. the fall in expected returns due to volume reduction and perception of regulatory risk).

The effectiveness of a transition approach would vary with the slope and duration of glide path to cost recovery. Too long and gradual a transition could unnecessarily delay upgrades to rolling stock, while too short and steep a transition could have the same drawbacks as the 'do nothing' option.

#### **Ensure that Network Rail can recover its total costs: (2a ~, 2b ~)**

This option would prevent Network Rail from fully recovering its costs directly incurred from operators. However, DfT has stated that capping is consistent with the assumptions made in the SoFA and therefore we assume there to be no material impact on recovery of efficient costs.

### **Delivery of ORR's general objectives**

#### **Promote competition on the railway: (2a ✓, 2b ✓✓)**

Compared to the 'do nothing' option, there are likely to be beneficial impacts on the competitiveness of freight operators vis-à-vis other modes of transport as a lower VUC may lead to lower rail prices and a higher number of services offered.

Specifically, by allowing a transitional period, operators have more time to adjust their rolling stock, such that when the full VUC rates are applied they may have already adjusted to more track-friendly vehicles with lower associated VUCs. Such a delay could be important, given operators may be locked into existing operational leases or otherwise constrained in quickly changing their rolling stock. By allowing operators more time to adjust until the full uncapped VUC rates come in, this should allow operators to maintain lower prices to the benefit of their competitiveness.

This option results in some increases in the VUC from the beginning of CP6. This helps increase the credibility of the glide path to cost recovery – reducing the risk that levels of traffic on the network are based on a false understanding of future VUC rates.

The exact nature of the benefits would depend on the slope/period of the transition. The steeper the increase, the less time available to adapt to the new incentive, but with arguably a benefit in terms of establishing the credibility of the glide path to cost recovery.

#### **Low volatility for operators: (2a ~, 2b ✓)**

A linear transition in VUC rates will generate a lower transitional impact for operators relative to an immediate step change. Operators have more time to plan and adjust to the new incentive structure as a result of the new VUC rates being phased in over a period.

The notice given to operators – and therefore the size of the transitional impacts - will depend on the timescales of the transition period. The

shorter the period, the more the volatility in the charge and the greater the transitional impact will be.

Noting that operators might be at different stages of the business/investment cycle, we err on the side of caution and score option 2a as being neutral to the 'do nothing' option.

**Deliverability: (2a ~, 2b ~)**

Neither option 2a nor 2b will require significant resource to implement.

**Limit Transaction costs: (2a ~, 2b ~)**

There would be minimal transaction costs associated with this option.

**Promote positive wider external impacts: (2a ✓, 2b ✓✓)**

The reduced impact on competitiveness of rail freight relative to the 'do nothing' option would limit the shift from rail to road and thus may have beneficial impacts for the environment, productivity benefits from lower congestion, as well as safety benefits.

On the other hand, we could expect reduced wider external benefits due to higher possessions (as a result of lower investment in track friendly vehicles and more services being run), resulting in increased noise and air pollution. Also, any safety benefits arising from investment in new rolling stock would be limited.

Again, the exact nature of impact depends on the length of the transition period. The shorter the period, the greater the shift to road may be.

Overall, the wider external benefits are expected to be greater relative to the 'do nothing' option by limiting the transition to road freight.

**Promote positive impacts on funders/customers: (2a ✓, 2b ✓✓)**

Customers would benefit from lower prices and more services being operated than under the 'do nothing' option.

Negative impacts on customers may arise through higher rail congestion and delays than under the 'do nothing' scenario.

In addition, this approach would reduce the VUC income received by Network Rail relative to the 'do nothing' option. However, as Network Rail's business plans were built on the assumption of a flat real VUC, the introduction of a cap can be viewed principally as foregoing

additional income and projects that were not included in the February SBP baselines.

Overall, the net effect on customers would be positive. The length of the transition determines the nature and scale of benefits. DfT has stated that capping is consistent with the assumptions made in the SoFA and therefore we assume there to be no material impact of this approach on funders.

Assessment of  
Option 3  
(‘Lump-sum  
rebate’)

### **Delivery of PR18 outcomes**

#### **Ensure operators take costs of service into account when using the network: (~)**

In line with the baseline ‘do nothing’ option, operators would incur the full VUC charge on all their traffic, meaning the marginal price they pay for access would be equal to the short run marginal cost of providing them with access. The incentive to operate only on routes where marginal cost is no greater than marginal benefit would be at its maximum efficient level from the start. This option would be equivalent to the baseline ‘do nothing’ option with respect to maximising the likelihood of operators responding to the incentives created by the VUC charge.

#### **The network is efficient**

#### **People who can make efficiency improvements care about efficiency: (✓)**

As operators would face the new VUC charges at the margin from the outset, they would face increased incentives to invest in upgrading or renewing rolling stock, as with the ‘do nothing’ option. However, unlike the ‘do nothing’ option, the lump-sum rebate could ensure that perceptions of regulatory risk do not increase. Investors might nevertheless require higher returns if profitability declines as a result of a decreased demand. Overall, the net effect on investment in rolling stock is likely to be positive.

#### **Ensure that Network Rail can recover its total costs: (~)**

The impact of Option 3 on Network Rail’s funding is complex and is dependent on how actual traffic levels vary relative to the selected baseline.

Based on the assumption that Network Rail pays the rebate to operators, this option would prevent Network Rail from fully recovering its costs directly incurred from operators. However, DfT has stated that capping is consistent with the assumptions made in the SoFA and therefore we assume there to be no material impact on recovery of efficient costs.

We mark this score as 'neutral' though note that there is a degree of uncertainty over this impact which would have to be considered in more detail should the approach be progressed for implementation.

### **Delivery of ORR's general objectives**

#### **Promote competition on the railway: (✖)**

There are mixed benefits of this approach on competition.

As operators face higher marginal costs, assuming these costs are reflected in prices, Option 3 would be the same as the 'do nothing' approach. However, the fact that operators receive a 'lump-sum rebate' means that they are protected from the financial shock caused by the sudden uplift in VUC rates which will give operators time to adjust to the new rate. It will therefore reduce the risk of increased VUC rates driving operators out of the market, thereby threatening the sustainability of the sector.

As opposed to other approaches – whose competition impacts relate to the competitiveness of rail against road – Option 3 has the potential to impact on competition between rail operators. Specifically, this approach grants incumbent operators protection for their existing traffic volumes while a new entrant operator would need to pay full marginal cost to achieve the same volume (as they are not eligible for the lump-sum rebate). The marginal incentives between the two are not distorted – but the incumbent benefits from payments as it loses market share. Such points raise concerns about undue discrimination between operators. While competition at the margin is not directly distorted, in a cash-constrained environment, an incumbent benefits from positive cash flow benefits of a rebate when it competes with a new entrant (who has no such benefit).

There is also the potential for 'windfall' gains for operators arising from factors that are not related to rail charges. For example, the anticipated fall in coal traffic could lead to a net payment to coal shippers – in extremis a payment could even be made though no trains run. This



would seem likely to accrue to the operators rather than the end users as the rebate is a lump-sum and will not be competed away.

**Low volatility for operators: (✓✓)**

As opposed to the 'do nothing' option, the transitional impacts would be limited for operators as their exposure to the increased VUC in CP6 would be mitigated by the lump-sum rebate.

**Deliverability: (✖✖)**

This approach is novel and complex meaning that resource from a range of stakeholders would have to be devoted towards developing, understanding and implementing the mechanism. This complexity could also create further policy issues that put the identified benefits at risk.

In addition, we have not tested this approach with stakeholders so there are questions as to whether there would be difficulties implementing such an approach (for example, Network Rail would have to be clear that its billing system could administer such an approach and there are also questions as to how such a 'baseline' would be constructed or monitored).

**Limit Transaction costs: (✖)**

There would likely be some transaction costs associated with this approach – specifically, a 'baseline' of traffic would have to be monitored by Network Rail and operators.

**Promote positive wider external impacts: (✓)**

This option may generate positive external impacts relative to the 'do nothing' impact which may see a material transfer of traffic from rail to road. This is because the lump-sum rebate should allow freight operators to continue to provide services at similar levels of profitability without passing on price increases to their customers (at least temporarily).

Under this approach, operators do face marginal incentives that reflect the updated VUC rate. This means that fewer services would be run, limiting the extent of the wider external impacts.

**Promote positive impacts on funders/customers: (✓)**

Customers may face lower availability of rail services as more marginal routes are no longer operated due to the higher VUC rates, at the margin.

In principle, all variable/marginal costs are passed onto consumers in competitive environments, thus customers would see a price increase reflecting the higher VUC (to the extent determined by customers' elasticity of demand, the degree of competitiveness between operators and the ease with which downstream customers can substitute away to other products).

However, as with the 'promote positive external options' objective above, we consider that the lump-sum rebate can be used to limit the switch to rail and will therefore positively impact funders/customers.

This approach would see funds generated by the VUC being offset by the lump-sum rebate which, in turn, means Network Rail will receive less revenue than under the 'do nothing' option. However, as Network Rail's business plans were built on the assumption of a flat real VUC, the introduction of a cap can be viewed principally as foregoing additional income and projects that were not included in the February SBP baselines.

DfT has stated that capping is consistent with the assumptions made in the SoFA and therefore we assume there to be no material impact of this approach on funders.

**Recommendation**

This impact assessment has considered how different parties may be affected by an uncapped increase in the VUC and has explored three broad approaches which could be adopted to cap/phase-in the increase for certain operators. The advantages and disadvantages of each of the options have been assessed and can be summarised as follows:

Option 1: (flat real VUC in CP6) provides considerable stability for operators and may, in turn, help to secure wider external benefits. However, the option scores poorly on cost reflectivity and does not incentivise the optimal use of the network or fully encourage behaviours to reduce Network Rail's costs.

Option 2: (increase transition) avoids a sudden increase in VUC rates to provide operators with some time to adjust. There are material

deviations from uncapped levels in the early stages of the transition profile but rates increasingly approach cost reflectivity over time.

Option 3: (lump-sum rebate) allows for cost reflectivity at the margin to incentivise efficient use of the network whilst also protecting operators from significant increases in the VUC for their existing services. However, this option is also considered complex and there are concerns regarding deliverability.

In conclusion, option 2 scores positively more broadly across the criteria considered relative to options 1 and 3. It can therefore be considered to provide the best combination of simplicity and cost reflectivity, while also providing operators with time to adjust to the full increase in the VUC level.

The shape of the transition profile can be adapted to adjust the balance of these factors – be it a straight line transition to full cost reflectivity over one control period (option 2a), two control periods (option 2b) or a further variation. We will explore these options in more detail to inform our final policy proposal.

## Appendix A – Summary of CP6 impact scores

Summary of CP6 impacts	Option 1: Flat real	Option 2a: Transition	Option 2b: Transition	Option 3: Lump sum rebate
<b>Incentive properties of the Charge</b>				
- ensure operators take costs of service into account when using the network	xx	x	x	~
- people who can make efficiency improvements care about efficiency	xx	~	x	✓
<b>General charges and objectives:</b>				
- Transitional impacts	✓✓	~	✓	✓✓
- Wider external impacts	✓✓	✓	✓	✓
- Impacts on competition	✓	✓	✓✓	x
<b>Simplicity</b>	~	~	~	xx



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