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Dear Ekta,

Network Rail consultation on traction electricity & electrification asset usage charges in CP5

This letter sets out TfL's responses to the questions posed by the consultation. TfL is content for the contents of this response to be published.

(A) Do you agree with our proposal to leave all modelled passenger and freight EC4T consumption rates unchanged for CP5?

TfL agrees with the proposal.

(B) Do you have any other suggestions to make about modelled consumption rates in CP5?

Modelled consumption rates need to account clearly for differences between Alternating Current and Direct Current power consumption characteristics.

TfL has no other suggestions to make in relation to the modelled consumption rates during CP5. The modelled consumption rates are very sensitive to the assumptions made by the modeller so the long term aim must be to encourage the move towards metered operations using legitimate incentives that deliver value of money and are affordable. This approach will ensure the accurate allocation of energy costs.

TfL is supportive of attempts to promote environmentally advantageous forms of energy management. This commitment is demonstrated by the planned

fitment of meters to the Class 345 rolling stock that will be used to provide Crossrail services.

(C) Do you agree that it is appropriate to continue using the current uplift factors for electric multiple units?

TfL agrees that the current uplift factors should continue to be used.

(D) Do you agree that it is suitable to continue using the agreed methodology for calculating new modelled EC4T consumption rates, during CP5?

For new rolling stock (including the Class 345s to be used on the Crossrail network) metering should normally be used to ensure the accurate allocation of energy costs, where this delivers value for money and is affordable. For existing rolling stock deployed to new routes, or for units being modified (e.g. the inclusion of extra cars within existing formations) the current approach to modelling EC4T consumption rates should be retained.

(E) Do you have any views on our suggestion to uplift modelled consumption rates by 10%, consistent with the surcharge applied for missing metered data?

The proposed surcharge is unhelpful and possibly unfair because of the costs and constraints associated with metering of trains drawing traction current on a Direct Current basis. It also does not take account of the potential costs of retrofitting meters to existing electric trains of any type. The consultation document does not make clear how dual voltage trains would be treated; this point requires further consideration. It is important that any measures enacted do not have costly or impractical consequences for dual voltage rolling stock.

The best mechanism for sponsoring the fitment of metering in a way that does not distort existing contractual arrangements is for funders to make this obligatory when new franchises or concessions are introduced, subject to consideration of value for money and affordability. Incentivisation of meter fitting by freight operators needs to be considered separately.

Consideration should also be given to improving the granularity of the metering capability within the rail infrastructure (as opposed to on train metering) to improve the accuracy of the billing process for each operator.

(F) Do you have any views on the use of the proceeds from an uplift to modelled consumption rates?

The proposal to pay back the proceeds of the uplift to the modelled and metered operators in proportion to their total traction electricity charge bill

following the cost wash-up is likely to reduce the incentive to move to metered operations. This is because operators using modelled consumption rates will receive at least some of the cost of the surcharge back through the process described. This significantly reduces the value of the uplift that is proposed.

If the uplift is ultimately progressed as part of the CP5 charging framework then the proceeds of the surcharge should be reinvested in the power supply facilities used by those parties subject to the surcharge. Any such investment should be focused on the goal of improving energy efficiency and the accuracy of billing, for example by improving the granularity of the metering capability within the rail infrastructure (as opposed to on train metering) on routes where operators remain reliant on modelled consumption rates.

(G) Do you have any views on applying the uplift to modelled consumption rates to new vehicles only?

This would be reasonable provided that the cost of fitting meters to new rolling stock can be demonstrated to be both affordable and value for money.

(H) Do you have any views on whether regenerative braking discounts for modelled usage should remain in CP5 or CP6?

TfL considers that the regenerative braking discounts for modelled usage should remain during CP5 and CP6. This will maximise the incentive for operators to provide regenerative braking capability on their trains.

(I) Do you have any views regarding provisions to allow us to verify that regenerative braking is being used correctly?

Regenerative braking is normally highly beneficial to TOCs as it greatly reduces wear on the friction brake equipment, maintenance of which generates significant costs. Operation of the electric brake on vehicles is closely integrated with any regenerative braking functionality; if the electric brake is isolated (preventing power regeneration) then the operator will be under very strong pressure to reinstate it due to other adverse consequences. Operators are therefore strongly incentivised to keep the regenerative braking functioning wherever it is available. It is therefore unlikely that any audits will uncover many false claims that regenerative braking is being used when it is not.

It is also important to note that Network Rail has a significant role to play in the amount of regenerated energy produced. For example Network Rail has responsibility to maintain rail adhesion levels during adverse weather conditions. The level of adhesion can affect the amount of regenerated energy produced. It is therefore inappropriate to assume from a charging

perspective that regeneration is solely within the control of the operator.

(J) Do you agree with our proposal to apply a regenerative braking losses factor of 0.9899 (based on losses estimate of 1%) to metered AC regenerated energy?

TfL considers that the losses factor for regenerated energy is only meaningful for electricity that is exported back to the National Grid. If the regenerating train is close to another (receptive) train then losses may actually be reduced to a level below that proposed. Further study should be undertaken to refine the losses factor to reflect this, with the figure being kept under review during CP5.

(K) Do you have any views on reopening the regenerative braking losses factor for AC after two years during CP5 to reflect emerging information, capped at no less than 0.9744 (losses estimate of 2.5%)?

TfL considers that further study is required (refer to the response to question J above) to refine the losses factor. TfL therefore considers that the losses factor should be reopened if further study demonstrates that it is too low. The losses factor should not be reduced during CP5 given the analysis referred to in the answer to question J.

(L) Do you have any views on the other options for charging for metered regenerated energy?

TfL has no comments to make in response to this question.

(M) Do you support the work that we have carried out to quantify AC system losses?

TfL supports the work that has been done on this topic to date.

(N) Do you support further validation of the 4.82% likely to be proposed for CP5?

TfL would support further validation work provided that this does not cause the loss factor of 4.82% to increase during CP5, increasing the energy costs borne by the industry. TfL notes that the proposed charging framework does not incentivise Network Rail to reduce AC system losses despite the measures that can be taken to accomplish this. TfL considers that further thought should be given to jointly incentivising Network Rail and operators to reduce AC system losses.

(O) Do you have any views on reopening the losses mark up after two years during CP5 to reflect emerging information?

TfL considers that the losses mark up could be reopened during CP5 provided that the reopening causes it to be reduced, reflecting the opportunities for improved performance in this area.

(P) Do you have any views on not geographically disaggregating the AC losses mark up?

TfL agrees with Network Rail's conclusion on this. Changes in ESTA boundaries and changes in electric traction traffic levels within current routes as electrification is extended during CP5 may alter the differentials between ESTAs, making it unwise to geographically disaggregate the charge based on the current network and operations.

(Q) Do you have any comments on the AC losses report published alongside this consultation?

The fact that stabling loads have not been included in the analysis is a serious weakness as the industry recognises that stabled trains are major consumers of power. Consideration should be given to separately metering (on the supply side) and billing large stabling sites, particularly where the trains themselves remain unmetered to ensure that power consumption costs are properly covered.

(R) Do you support our proposal to adjust the way the EC4T delivery charge is levied?

TfL supports the proposal.

(S) Do you support our proposal for all freight traction electricity charges to be based on actual electricity costs faced by Network Rail from the start of CP5?

TfL would support this approach, recognising that it would reflect price differences by geography and time in a more accurate fashion than the current system.

(T) Do you support the reform of the EC4T Metering Rules to be widened and renamed the traction electricity rules?

TfL supports this move as it will ensure that the rules governing the consumption of traction electricity are fully aligned with agreed arrangements for metering and are transparent.

(U) Are there any other areas which you consider should be included in the new traction electricity rules document?

Separate metering of depot and stabling sites should be provided for, particularly where the rolling stock itself is unmetered. The purpose of this is to incentivise the efficient use of electricity by parked trains. This is not properly reflected by the current modelled tariffs.

Changes to the existing billing process and the associated supply of information should be borne by Network Rail as they are the power provider.

(V) Do you support the modification of the cost wash-up drafting to allow it to be more accurate and reflect direct price-setting arrangements?

TfL supports the modification to the cost wash up drafting.

(W) Do you have any views on the cost activities we have included in our EAU cost estimates?

TfL considers that, given the damaging effect individual power supply failures can have on train services, assurance should be given that the spending is targeted on projects that will improve reliability and performance.

(X) Do you have any views on the variability assumption we have used in our EAU cost estimates?

TfL has no comment to make in response to this question.

(Y) Do you have any views on our proposal to use long-run cost estimates over 35 years instead of 5 years?

TfL considers this approach to be sensible as it will ensure that a whole life view of the asset is used to inform its maintenance and renewal costs. It will also ensure that costs are more consistent over time, reducing the risk that operators are exposed to sudden increases in charges when major renewals activity is required. Assurance should be given that any upgrades and renewals proposed deliver value for money and will maintain and improve performance. Assurance is also needed that the longer run estimates will remain sufficiently flexible to accommodate upgrade works that may emerge at a later date.

(Z) Do you have any views or suggestions about our approach to stakeholder engagement?

TfL would welcome the opportunity to be more closely involved in the process

of setting electricity charges, for example by participation in a working group on this topic. This is particularly important to TfL because the Concession Model operated by TfL means that the risks surrounding electricity prices are partially retained by TfL for its National Rail Concessions and fully retained for London Underground. TfL also needs to represent the interests of Crossrail in this key area until the Crossrail Operator is appointed.

Yours sincerely,

**Alan Smart,
Principal Planner – Forecasting,
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