Workgroup Consultation Response Proforma

CMP315: TNUoS Review of the expansion constant and the elements of the transmission system charged for and

CMP375: Enduring Expansion Constant & Expansion Factor Review

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses to cusc.team@nationalgrideso.com by **5pm** on **17 May 2022**. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

If you have any queries on the content of this consultation, please contact Paul Mullen Paul.j.mullen@nationalgrideso.com or cusc.team@nationalgrideso.com

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I wish my response to be:

(Please mark the relevant box) ☒Non-Confidential ☐Confidential

Note: A confidential response will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the Panel or the industry and may therefore not influence the debate to the same extent as a non-confidential response.

For reference the Applicable CUSC (charging) Objectives are:

a. *That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;*

b. *That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection);*

c. *That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses;*

d. *Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency *; and*

e. *Promoting efficiency in the implementation and administration of the system charging methodology.*

**Objective (d) refers specifically to European Regulation 2009/714/EC. Reference to the Agency is to the Agency for the Cooperation of Energy Regulators (ACER).*

Please express your views in the right-hand side of the table below, including your rationale.

Standard Workgroup Consultation questions		
1	Do you believe that the CMP315 Original Proposal better facilitates the Applicable Objectives?	Mark the Objectives which you believe each solution better facilitates: Original ☐A ☐B ☐C ☐D ☐E Click or tap here to enter text.
2	Do you believe that the CMP375 Original Proposal better facilitates the Applicable Objectives?	Mark the Objectives which you believe each solution better facilitates: Original ☐A ☐B ☐C ☐D ☐E Click or tap here to enter text.
3	Do you support the proposed implementation approach?	☐Yes ☒No Click or tap here to enter text.
4	Do you have any other comments?	Click or tap here to enter text.
5	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	☐Yes ☒No We have offered to support interested workgroup members in developing a WACM in future. Click or tap here to enter text. Click or tap here to enter text.

Specific Workgroup Consultation questions		
6	Do you agree with the CMP315 and CMP375 Proposers' conclusions that the Expansion Constant should also include circuit reinforcement, non-circuit works and life extension works in addition to new	We do agree with the conclusions from both proposers of expanding the scope of works to include circuit reinforcement, non-circuit works and life extension works in addition to new circuit build. Such a change would better achieve objectives (b) and (c). Both proposers recognise the current defect in the system charging methodology that transmission licensees, both currently and in future, invest in a wider range of works to provide network capacity and secure the network than new build circuit alone. Accounting for a wider scope of works will better achieve objective (b), by more closely reflecting the costs incurred by transmission licensees. Similarly, a methodology which accounts for how the types of works carried out changes over time would better achieve objective (c) by accounting for changes in the licensees' transmission businesses.

	circuit build. Are there any other reinforcement types that should be included? Please provide justification for your response.	In line with both these objectives, the methodology should also aim to include a wider scope of reinforcement types such as SMART solutions. These solutions provide an alternative to building new circuits when network capacity is insufficient and should therefore be considered on an equal footing as a cost incurred by transmission licensees to provide additional grid connections. Since these are likely to become more prevalent in future, it will become more important that they are included in the system charging methodology. However, at this time, there is limited data on transmission network SMART solutions and these can therefore be excluded from the first iteration of the proposed new methodology. Inclusion of these solutions should be reviewed again in future with additional data.
7	CMP315 and CMP375 have different proportions of each reinforcement type in the basket for the calculation of the Expansion Constant because the Proposers have different interpretations as to what the Expansion Constant should represent. Which one of these interpretations do you agree with or do you have a different approach? Please provide justification for your response.	We agree with the interpretation of the CMP375 proposer. The current EC/EF calculation reflects the growth in the NETS and this interpretation should continue but be updated to reflect that NETS expansion is no longer primarily driven by new circuits. **Consistency with Ofgem's current interpretation** This view is consistent with the interpretation of the model discussed by Ofgem in other documents on the future of transmission charging. In Ofgem's recent call for evidence on TNUoS charges (link below), Ofgem states that *"charges should provide useful signals and should reflect the costs which a party's choices confer on the network."*. Current network users' choices do not influence historic investment decisions on the transmission system, therefore the costs of this network infrastructure should not be included within the charges that they pay. Under the current methodology, the network charges paid by a user do not depend on whether their connection leads to additional reinforcements on the network. However, Ofgem has identified this as a potential defect in the current methodology in the TNUoS call for evidence, suggesting that they investigate *"the extent to which available capacity of network assets should be reflected in the charging methodology - we note that it is possible that TNUoS charges may signal that the incremental cost of connecting at a particular location would be significant, but in practice, by virtue of unutilised capacity in that locale, there may be limited TO investment required."* This suggests that Ofgem believes that users should be incentivised to locate where their choice will reduce the need for additional network reinforcement. Link to Ofgem's Call for Evidence: https://www.ofgem.gov.uk/publications/tnuos-reform-call-evidence **Consistency with objectives** The system charging methodology should provide a forward-looking signal to incentivise demand and generation to locate where they reduce the costs incurred by transmission licensees. This is in line with objective (b) which states that the charges should reflect the costs incurred by transmission licensees. This approach also reduces the overall system cost of the transmission network and reduces the cost of networks for consumers. In Figure 1 below we consider three connections to the transmission network and study the costs incurred on the network and the TNUoS signals which would result. For each scenario, we first consider the work required on the transmission network if the generator does not connect, called the counterfactual. We then consider the works required under the factual, where the generator connects. The difference between these are the works required due to the generator connecting. The charge incurred on the circuit A between the generator and the wider network should reflect the costs of these additional works and the additional network capacity required. Under the current methodology, this should be captured by the expansion constant. Based on our understanding of the methodologies for CMP315 (as per Annex 3) and CMP375, the table also outlines how each connection would contribute to the expansion constant under each approach.

The table also shows how each connection would contribute to the expansion constant under the LCP approach. For circuit build, this aligns with CMP375. However, the LCP approach differs in how it constructs a basket of reinforcements and how it treats non-circuit build.

Figure 1

	Connection 1	Connection 2	Connection 3
Network map			
Interpretation	Generator requires a new circuit to connect	Generator requires refurbishment to maintain or uprate circuit	Generator requires no new circuit capacity
Counterfactual – outcome if generator doesn't connect	Circuit A is not built	Circuit A remains on network for remaining lifetime	Circuit A remains on network for remaining lifetime
Factual – outcome if generator connects	Circuit A is built as a new build circuit	Circuit A is refurbished and uprated	Circuit A remains on network for remaining lifetime
Works required if generator connects	New build circuit	Circuit uprating/refurbishment	None
Additional network capacity of works	New build circuit capacity	Additional capacity after refurbishment. Should make an allowance for the remaining capacity on existing asset	None
Additional cost of works	New build circuit cost	Uprating/Refurbishment cost	None
Contribution to EC/EF calculation under CMP375	New build circuit capacity and cost	Cost of refurbishment on circuit capacity	Not included in calculation of expansion constant
Contribution to EC/EF calculation under CMP315	New build circuit capacity and cost	New circuit cost plus refurbishment cost on circuit capacity	New circuit cost on existing capacity
Contribution to EC/EF calculation under LCP approach	As per CMP375	As per CMP375	As per CMP375

In general, generators should be incentivised to choose locations such as under Connection 3 where no additional capacity is required. Similarly, if more generators choose Connection 2 then this should, in general, result in lower network costs than Connection 1. This incentive should be reflected in the impact these choices have on the expansion constant and factors. If these incentives are not reflected in the modelled cost of reinforcement, then generators will not be incentivised to locate where the cost of reinforcement is lowest.

Therefore, it is preferable from a system cost perspective to consider incremental works caused by new connections, as under CMP375, rather than look at historic investments as under CMP315. Under the CMP315 interpretation, the cost of Connection 2 that is included in the expansion constant would always higher than that for Connection 1 as the historic new build circuit cost is added to the cost of refurbishment. Implementing the CMP315 approach would encourage generators to locate where new build circuit capacity would be added, rather than where assets could be refurbished.

Ideally, Connection 3 type connections also should be included in the expansion constant calculation to encourage locating where there is spare network capacity. This is a known defect relating to spare capacity highlighted by Ofgem in their recent call for evidence on TNUoS reform.

Overall, the CMP375 interpretation provides a more cost reflective and a closer to forward-looking signal than CMP315 that would encourage generators to locate in a way that reduces transmission network reinforcement costs. This would ultimately lead to lower costs for transmission operators and reduce network costs for consumers.

8	A Workgroup Member has also suggested an alternative approach to establish the forward-looking marginal cost over a realistic 5–10-year time horizon. Do you agree with this interpretation or would you suggest a different approach? Please provide justification for your response.	We do agree with this interpretation as it aligns the system charging methodology more closely with the works undertaken within the transmission businesses for the period in which charges apply, as intended by objectives (b) and (c). This approach would also bring charging methodology more closely into line with National Grid ESO's Network Options Assessment which is forward-looking. The locational signal set by transmission charges should incentivise users to locate where they minimise future network costs. Moreover, network charges should be set to recover the transmission licensees' forward-looking costs, as set out in their business plans for each RIIO price control. Therefore, setting a locational signal based on a forward-looking marginal cost is more consistent with both the objectives and the price control approach. Using a representative "basket" of network reinforcements will provide network users with a clear view of the assumptions used to set the charges. Aligning the basket contents with planned future reinforcements will also ensure that users pay for the service they are provided by transmission licensees while they pay transmission charges. If the basket were not based on future reinforcements, then there would be a lag between the time when reinforcements are made, and when they are reflected in charges. This would not create a forward-looking charge. Where possible, the methodology should also use forward-looking costs of reinforcements. These could be sourced from the approved costs of reinforcements under price controls. There could, however, be scenarios where additional historic data can improve the overall volume of data used and thereby the reliability of cost information used to set the cost signal. For the avoidance of doubt, this data can improve the reliability of the per unit *costs* of each intervention type, without detracting from the forward-looking weighting of different network interventinos;. the weighting of different interventions is still proposed to be forward-looking, as informed by approved price control data.
9	CMP315 and CMP375 Originals propose using the last 10 years historical data when calculating the Expansion Constant/Expansion Factors. Do you agree with this approach or are there alternative approaches to consider? Please provide justification for your response.	We believe that, where possible, the expansion constant and expansion factors should be based on forward-looking data. This includes both the types of reinforcements carried out in future (see Q9) as well as the expected costs of those reinforcements. However, the time period over which the cost is calculated should be long enough to ensure that sufficient data is collected to mitigate short-term volatility and avoid step-changes at the start of price control periods (as identified in CMP353). Equally, the time period should be short enough that changes in costs of reinforcements are reflected in the cost used for system charging to maintain an up-to-date signal.
10	Do you agree with the list of data items, the ESO require from Transmission Owners to calculate the Expansion	The current approach seems too extensive because it is not clear how all of the data will be used within the expansion constant calculation. Under the LCP approach, the usage is clearly defined and the data sets required already exist as part of transmission licensees' business plans for each RIIO price control. This could significantly simplify the data request if NGESO could use this data to implement a methodology.

	Constant. Please provide justification for your response.	It may emerge that additional data would improve the LCP methodology, though this is likely to be a less complex data request than currently proposed by ESO.
11	In their analysis, Lane Clark and Peacock (LCP) have provided an alternative implementation approach proposing non-circuit build to be allocated to existing circuits and thereby included within the EFs rather than creating proxy circuits (as proposed by the CMP315 and CMP375 Original). Do you have any thoughts on this and do you agree with LCP's proposal for reinforcement factors? Please provide justification for your response.	We do agree with LCP's proposed alternative implementation as it is consistent with how circuit build is accounted for within the CMP375 Original. The proxy circuit approach would assign no value to the circuit capacity enabled by non-circuit build and would assume that these reinforcements do not help provide capacity on the adjacent network. Cost reflectivity of network charges is not improved by including more reinforcement types if they are not reflected appropriately in the methodology. The discussion below sets out how non-circuit build should be considered conceptually and argues that the LCP approach is a methodology which better maintains these principles. **Consistency with treatment of circuit build** Under CMP375 Original, circuit reinforcements contribute to the expansion constant and factors based on the difference between carrying out the reinforcement (the factual) and not carrying out the reinforcement (the counterfactual). This is discussed in more detail in answer to Question 7. This view is consistent with aligning the charges paid by users of the transmission system with the costs incurred when they connect. This interpretation should be applied equally to non-circuit build. For example, if new non-circuit build is required, then this cost should be reflected in transmission charges, alongside the capacity provided by circuit build around the non-circuit asset. Equally, if non-circuit refurbishment or replacement is required, then the change in cost and capacity relative to not carrying out the works should be considered. Without non-circuit build, some circuit assets may no longer be useable. Not carrying out replacement works to non-circuit assets could lead to large decreases in network capacity. Similarly, non-circuit reinforcements could be carried out as an *alternative* to circuit reinforcements, to deliver increases in network carrying capacity. Therefore, they should be considered to provide network capacity, in the same way as circuit build and refurbishments are treated under CMP375 Original. A specific example of this from NGESO's 2021 ETYS is highlighted further below. The proxy circuit approach would not achieve this. It would be purely additive and would assume that non-circuit build does not enable neighbouring circuit capacity. There is a risk that the cost of delivering network capacity would be double counted, as the Transport and Tariff model would include the cost of non-circuit build and assume that additional circuit works were also carried out. **Example scenario** Consider a scenario where a Transmission Operator has two options for reinforcing a section of their network. In this scenario, consider the expansion constant to be set only by new build circuits (ignoring other circuit works) for simplicity, and assume that transmission operators are carrying out similar works across all areas of the network. **Option A:** build a new circuit **Option B:** upgrade a substation to release additional network capacity The Transmission Operator should select the option which delivers the required network capacity at least cost and this cost should be reflected in the charges paid by users of the network. The difference in the locational signal sent by the charging methodology under the two scenarios should reflect the relative cost of new build circuits and non-circuit refurbishment.

		Under the CMP375 Original interpretation, network costs within the Transport and Tariff model will appear higher under Option B than Option A. This is because the expansion constant is set by new circuit build under both options, however proxy circuits for non-circuit build are always an additional cost. Meanwhile, the cost of the new circuit build under Option A is not reflected in the model. This would mean that under CMP375 Original, network users would always face a stronger locational signal if Transmission Operators chose non-circuit reinforcements, even if these were lower cost solutions. Under the LCP approach, the non-circuit refurbishment would be considered on an equal footing with the new circuit build by assigning capacity to non-circuit build based on the network capacity enabled by the reinforcements. Under Option B, the non-circuit build would deliver network capacity and be included in the calculation of expansion constants and expansion factors. This would mean that impact of reinforcement decisions on costs when calculating transmission charges would more closely reflected the relative costs faced by transmission operators. **Example from Electricity Ten Year Statement (ETYS) 2021** The ETYS 2021 produced by NGESO contains an example which shows how non-circuit reinforcements could increase network capacity. In the section on the B6 boundary at the link below, the boundary capacity is stated as 6.4GW, but that *"the current boundary capability is limited to 6.1GW due to a thermal constraint on an SGT at Harker substation."* Therefore, non-circuit build should not be considered only as an additional cost and some allowance should be made for the network capacity enabled by these reinforcements. Link to ETYS 2021: https://www.nationalgrideso.com/research-publications/etys/electricity-transmission-network-requirements/scottish-boundaries **Calculating the circuit capacity enabled** There are challenges to calculating the circuit capacity enabled by non-circuit build, as it necessary to consider interactions with other reinforcements. This is discussed in more detail in LCP report alongside a proposed methodology. However, it would be preferable to elaborate a guidance note to explain how to include non-circuit build in the methodology rather than to inconsistently assume that these reinforcements provide no network capacity and are a purely additive cost as under CMP375 Original.
12	To achieve implementation by 1 April 2023, the Workgroup understand that it will not be possible under the current timeline to include the new EC/EFs in the draft TNUoS tariffs for	We believe that it is in the interests of transmission network users to resolve the defects identified by these modifications in time for 1 April 2023. While we understand that NGESO may not be able to include the updated values in the initial draft TNUoS tariffs, we would expect that NGESO provide an update to tariffs at the earliest opportunity.

	2023/2024. Do you support this and, if so, in the absence of draft TNUoS tariffs for 2023/2024, what detail will you need ahead of final TNUoS tariffs being published?	