

Building upon the work undertaken by the Transmission Network Use of System (TNUoS) Task Force

The Transmission Network Use of System (“TNUoS”) Task Force was established by Ofgem and the ESO (National Grid Electricity System Operator) in 2022. It is made up of a diverse group of participants with a range of strengths and expertise to ensure balanced representation across different interests and roles within the industry. The key focus of the Task Force is to look at the issues of predictability and cost-reflectivity in current transmission charging arrangements, whilst considering the balance of and inherent trade-off between these two elements.

On 5 October 2022, Task Force members were asked to identify and provide rationale for potential areas for review or specific defects within the current TNUoS charging methodology, which are then to be considered by the Task Force. The resulting list of defects¹ were then prioritised by the Task Force, not only in terms of importance, but also focusing on if the defect should be looked at now or if this could be reviewed later - with defects then given a High/Medium/Low rating. In addition, it was considered what would be feasible in terms of the work that could be carried out by the ESO should the TNUoS Task Force be required to pause given the upcoming demands of winter work.

On 8 November 2022, Ofgem published a document (‘Open letter regarding prioritisation of electricity network charging reforms’²), setting out how it plans to approach activities on electricity network charging and connections given the current demands of winter work. As part of this prioritisation, Task Force meetings will not be scheduled for the remainder of 2022 with an expectation to review the timing of further meetings in January 2023. However, to maintain momentum of the Task Force work, the ESO have been asked to build on the work undertaken by the Task Force during the interim period. The output of this work will then be taken back to the Task Force to support discussion and its progression when it resumes.

This letter sets out the specific defects within the TNUoS charging methodology, collectively identified, and prioritised by the Task Force, which the ESO now intend to take forward for review.

There are four main priority areas ESO intend to review in the near term, with the approach including conceptual assessment, solution identification, and assessment of potential reforms (likely to include aspects of qualitative (conceptual) and quantitative analysis). The areas for review include:

1. Backgrounds:

The current TNUoS Transport model utilises dual ‘backgrounds’ to identify the generation and demand conditions which drive the maximum flow over each network circuit element. These backgrounds aim to reflect the drivers of transmission investment which are then used within the TNUoS calculation and reflected in charges.

The ‘Peak Security’ background reflects how the system is used by peaking generation plant (e.g. Conventional Carbon generators) and the cost of the transmission required at peak times, with the ‘Year Round’ background intending to represent the additional transmission network costs associated with providing the transmission needed to accommodate flows at times other than peak i.e. how the system needs to be built and the investment needed to accommodate less flexible generation (e.g. Low Carbon and Intermittent generators).

The current specification of these backgrounds is based on assumed patterns of generation and demand made at the time of Project TransmiT³ (i.e., ten years ago) which may no longer remain as relevant. The system has evolved significantly since this point (and will continue to do so) i.e., a shift from largely conventional dispatchable generation plant to more intermittent weather driven generation, as well as

¹ Resources - Charging Futures

² <https://www.ofgem.gov.uk/sites/default/files/2022-11/Open%20letter%20-%20prioritisation%20across%20charging.pdf>

³ [Project TransmiT: Decision on proposals to change the electricity transmission charging methodology | Ofgem](#)

significant changes to the nature of the demand side of the market. This ultimately means that a review of backgrounds is necessary to ensure charges remain reflective.

As part of this review the following may be considered;

- Relevance of previous assumptions from TransmiT
- Analysis of what drives peak flow over different network elements
- Exploration and assessment of potential alternative backgrounds i.e., do other demand and generation patterns also significantly drive costs in relation to certain network elements
- Review individual characteristics of the current backgrounds i.e., should the Year Round background used in the transport model still be based on peak demand and differ from the Peak background only in the generation which is assumed to be meeting this demand
- Review of the fixed scaling factors for the backgrounds given running these within the model may not be possible in future years as the fixed generation may potentially exceed peak demand

2. Shared/Not Shared elements of the Wider tariff:

The Year Round Shared (multiplied by a generator specific Annual Load Factor (ALF)) and Not Shared components of the generation Wider Tariff are used to calculate the locational charge specific to that particular generator, which are then linked to, and vary by generation zone. The elements represent the proportion of transmission network costs shared with other zones, and those specific to each particular zone respectively.

Over recent years a divergence between the locational charges for generators between the North of Great Britain and the South has been witnessed, with generators often paying a positive locational charge in the North, and paying a negative zonal element (i.e. a reduction in their final TNUoS charges) if located in the South. It has been suggested that this disparity may be a barrier to achieving Net Zero decarbonisation goals, and therefore it has been recognised that there is a strong case for reviewing those elements of the wider tariff to ensure they continue to be based on appropriate and cost reflective assumptions.

3. Review of data Inputs to the charging methodology:

TNUoS charges can change materially from year to year which, in large, may be reflective of both the number of, and inherent volatility of the inputs to the TNUoS methodology. The complex charging calculation methodology and its sensitivity to multiple variable inputs within the model can mean that charges are often unpredictable, a problem which may to some degree be addressed by reducing any volatility within the inputs themselves.

It has also been suggested that the data used in the methodology may no longer be fit-for-purpose or reflective of the most reasonable assumptions as to various parties' effects on the network.

As such, the Task Force considered that there would be significant benefit in assessing the extent to which the current data inputs into the methodology affect the stability and predictability of TNUoS tariffs, particularly in the context of providing a sufficient level of predictability to aid users/developers when making long-term commercial decisions to support delivery of low carbon infrastructure, as well as considering if and how further transparency to industry could be provided.

As part of this review the following inputs will be considered;

- Charging bases
- Demand assumptions used in locational modelling
- The use of the Average Cold Spell (ACS) as a representative measure to proxy for demand capacity.
- Transmission Owner (TO) data
- Annual Load Factors (ALFs)
- Week 24 Distribution Network Operator (DNO) data

4. Consideration of changes to the Reference Node:

The 'reference node' is the broad term used to describe the demand-weighted distributed reference node used within the Transport model and is the methodology underpinning the 'distance to demand' calculations in transmission charges, and as such determines the relative split of the cost of a transmission route between demand and generation.

Although not fully addressed within Task Force discussions to date, it has been suggested for some time, by various industry participants, that the reference node 'location' does have real impacts for the charges for generation as well as potentially undue differential impact on different technologies, and that consideration of changes to the methodology could provide improved competition between generators (both those of different sizes as well as types of generation) by better improving the cost reflectivity of TNUoS charges.

As such, the ESO intend to undertake a review in relation to the approach to the reference node and assessment of any potential options for change, which will subsequently be discussed with the Task Force when it resumes. This will include but is not limited to a review of the appropriateness of moving the location of the node or using a generation-weighted reference instead of the current demand-distributed reference node, and will involve not only outlining the specific outcomes of any change option but also providing a clear justification for potentially making those changes.

We intend to provide periodic updates to industry and to the Task Force regarding progress of the priority areas identified for review above.

If you have any queries please contact [James Stone](#), Transmission Charging Strategy Manager