CUSC Modification Proposal Form

CMP419:
Generation Zoning Methodology Review

Overview: To review the existing generation zoning methodology to incorporate offshore assets connected as part of the Holistic Network Design (HND) to enable the wider tariff to be applied to offshore generators. This modification seeks to also revisit the issue of zoning further to the expectations set out as part of the Authority decision on CMP324 and CMP325.

Modification process & timetable

1. **Proposal Form**
   10 August 2023
2. **Workgroup Consultation**
   23 January 2024 - 13 February 2024
3. **Workgroup Report**
   23 May 2024
4. **Code Administrator Consultation**
   04 June 2024 – 25 June 2024
5. **Draft Final Modification Report**
   18 July 2024
6. **Final Modification Report**
   07 August 2024
7. **Implementation**
   01 April 2027

Status summary: The Proposer has raised a modification and is seeking a decision from the Panel on the governance route to be taken.

This modification is expected to have a: High impact

National Grid ESO and parties liable for TNUoS charges.

Proposer's recommendation of governance route	Standard Governance modification with assessment by a Workgroup	
Who can I talk to about the change?	**Proposer:** Nitin Prajapati Nitin.Prajapati@nationalgrideso.com 07790970158	**Code Administrator Contact:** Lizzie Timmins elizabeth.timmins@nationalgrideso.com 07840708429

Contents

What is the issue?

CUSC section 14.15.37 ensures nodes are assigned to generation zones for the purposes of levying Transmission Network Use of System (TNUoS) charges. Criteria used to establish these generation zones are part of the methodology and are described in Paragraph 14.15.42. This methodology aims to dampen nodal marginal cost fluctuations derived from locational signals allowing improved tariff predictability and reduced volatility, whilst retaining a sufficient level of locational pricing, which is important in providing long term investment signals.

Generation zones have historically (before CMP324/325) been developed by reference to the nodal TNUoS Tariffs, calculated in a way that takes as its input data, Transmission Owner (TO) data on the cost of expanding the transmission network, the Security Factor (which considers the additional redundancy that is built into the network) and price control data including the Weighted Average Cost of Capital (WACC) and the Overhead Factor. A £/kW TNUoS price(s) is calculated and for each node of the transmission network, this is then averaged for each generation charging zone(s).

As part of the Offshore Transmission Network Review (OTNR), a Holistic Network Design (HND) was developed including onshore and offshore assets as per figure 1 below. This means that additional nodes may be created offshore which is not accounted for under the current zoning methodology or as part of the existing 27 onshore generation zones. Currently offshore generators are connected via radial offshore transmission, but some of the offshore generators in the HND will be connected via non-radial offshore transmission. As such, it is not currently clear within the CUSC how the wider Tariff would be applied to offshore generators that connect via non-radial offshore transmission as they are located outside the current 27 generation zones. A change to the CUSC is now required to review and update the zoning methodology to accommodate these offshore assets.

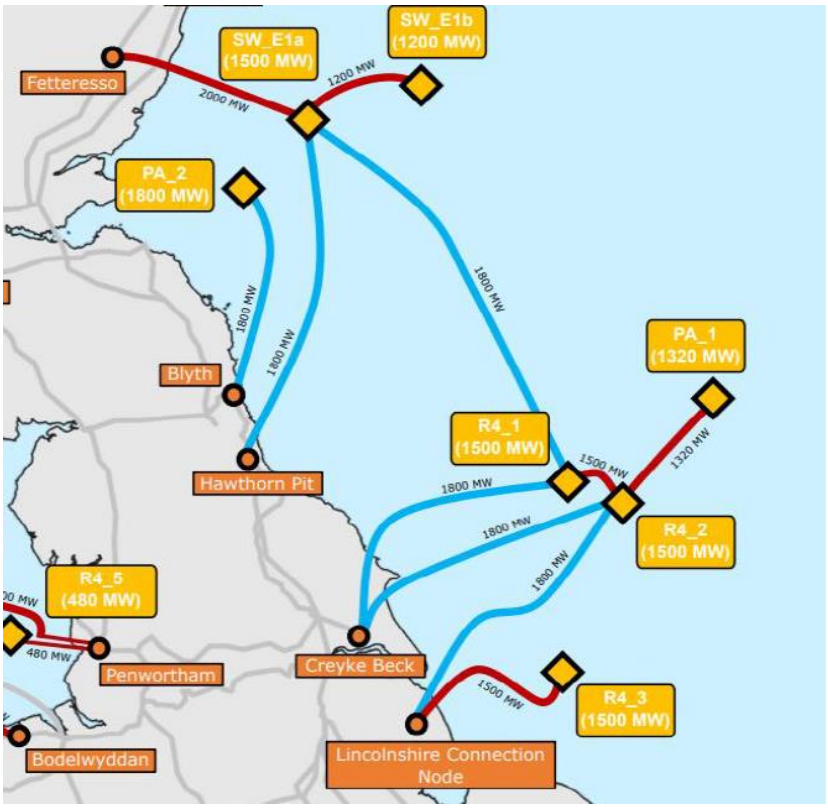

Figure 1: Holistic Network Design; East Coast Region

Why change?

To charge offshore generators for their use of the wider network the zoning methodology needs to be reviewed to incorporate the offshore assets which are part of the HND. In addition, a review of the zoning methodology is required following the Authority decision on CMP324 and CMP325 which stated, *'Given the significant interaction between this modification (CMP325/4) and CMP353, and any future reform to the Expansion Constant (EC) methodology, we would expect NGESO to revisit the issue of rezoning alongside the development of any future change to the expansion constant.'*

Recent stakeholder feedback suggests that Offshore developers (particularly those involved as part of the HND) require early clarity on how the charging regime would apply to them, so it is considered by the Proposer an appropriate time to review and update the approach to generation zones. This ensures consideration of onshore and offshore zones in one review, noting the interactions and dependencies, to help develop a holistic solution.

As mentioned above, the purpose of setting tariffs by zones instead of nodes, is to improve tariff stability. Some of the feedback from the industry within the TNUoS Reform – a call for evidence and discussions from the TNUoS Taskforce meetings have highlighted the importance of reviewing the methodology to help improve stability and predictability of TNUoS wider charges. Therefore, to deliver stable long-term investment signals for generators it's important to review the generation zoning methodology and more broadly consideration of the generation zoning methodology and its appropriateness as a signal.

Furthermore, there is a need to incorporate and consider the approach to Direct Current (DC) circuits. The HND proposes Alternating Current (AC) as well DC circuits. Under the current MWkm charging methodology, flows along meshed AC circuits are determined by circuit parameters (reactance). However, the reactance for a DC circuit can vary within a significant range, and therefore makes it challenging to determine circuit flows. There is an approach that was developed in CMP213 of assigning an approximated reactance to High-Voltage Direct Current (HVDC) circuits, for the purpose of TNUoS charging, however the methodology is only applicable for point to point HVDC circuits with both ends being onshore substations. Therefore, it is important to review this part of the zoning methodology to allow the transport and tariff model to calculate the loading on meshed offshore DC circuits. As without this method, the current £/MW/km charging methodology will cease to work.

What is the proposer's solution?

This modification proposal recommends reviewing the generation zoning methodology by first building on the principles currently outlined within CUSC section 14.15 to provide locational signals '*to reflect the costs of capital investment in, and the maintenance and operation of a transmission system*.' Due to the complexity and interactions of various elements of the wider tariff calculation, the Proposer believes that the specific details of a solution would be best considered by a Workgroup considering the following key principles for a solution and Terms of Reference.

Key principles for a solution

1. Firstly, considering the current drivers of instability and predictability in wider charges (as outlined by industry). Secondly, how a new generation zoning methodology which may potentially lead to requirements for rezoning, will impact tariff stability and considering any mechanisms to mitigate this. As a starting basis, reviewing the number of nodes within the zones is important. Zones with a high

number of nodes are likely to have more stability as when individual nodal prices change, they have a more limiting impact on the average. Whereas zones with less nodes are more subject to fluctuations. Generation zones aim to provide stability and predictability in the long term and locational signals provide the basis for cost reflectivity. As such, finding the balance between cost reflectivity, predictability, and stability and assessing the weight of importance, and or trade-offs between these elements will be important.

2. The use of the Electricity Ten Year Statement (ETYS) boundaries to determine Generation zones. This should help improve locational signals and enable consistency between operational and Generation zones. HND assets are likely to significantly impact the tariffs due to their high-cost values, with certain zones potentially having a more pronounced cost impact than others. However, the use of ETYS boundaries will provide a platform for more balanced impact across users (both onshore and offshore) of the network.

3. Determining the methodology to apply reactance to DC circuits. Firstly, consideration of treating DC circuits as AC circuits as a proposed approach. The proposer believes that the reactance should be modelled on a set value rather than a varying value. Consideration could be given to the current approach utilised for HVDC sub-sea “bootstraps” (the “Western Link”) and whether this is compatible or can be adapted.

Terms of Reference

1. Consider how the implementation of a new zoning methodology and associated impact of rezoning will impact the predictability and stability of charges.
2. Assessing the use of ETYS boundaries and/or use of other methods to develop generation zones before considering how this may or may not increase the range of nodal prices within a generation zone.
3. Assess the frequency of reviewing the number of generation zones, factoring in the decision from CMP324/325 and associated impacts on the stability of TNUoS charges.

Additionally, the solution should also consider the outcome, if known, of the Expansion Constant (EC) review that is being discussed under CMP315 and CMP375. Modifications CMP315 and CMP375 which involve reviewing the EC methodology, are currently at Workgroup stage and are expected to be completed or progressed significantly by the time this modification is in process.

The following elements are outside the scope of the modification:

1. Consideration of security factors for transmission circuits (onshore and offshore).
2. Review of the methodology and approach to the connectivity element between generation zones.
3. Review of the demand zones and associated methodology.

Draft legal text

To be developed by the Workgroup.

What is the impact of this change?

Proposer's assessment against CUSC Charging Objectives	
Relevant Objective	**Identified impact**
(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;	**Positive** This CUSC modification helps determine how the wider tariff will be applied to offshore generators, which in turn enables offshore coordination and facilitates competition, by giving more clarity to industry parties on how TNUoS will be charged offshore.
(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);	**Positive** It builds on the current principles used to calculate cost-reflective locational signals and extends them to offshore generators.
(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;	**Positive** The extension of the interconnected onshore transmission system to offshore, abandoning the old approach where we have 81 separate radial connections to shore, is clearly a new development of the interconnected/meshed 'supergrid', extending it to a degree offshore, and the charge calculation method needs to be adapted and developed to take account of this. Also, to note, onshore generators have the ability to access and/or use the offshore transmission system, therefore the methodology needs to be developed accordingly.
(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency *; and	**Neutral**
(e) Promoting efficiency in the implementation and administration of the system charging methodology.	**Positive** Will provide clarity to industry on the application of wider tariffs for offshore generators. It will also give an insight on how onshore generators will be affected, including by re-zoning. Furthermore, it will ensure that flows on spare HND network/circuit capacity for the benefit of onshore users is better reflected in TNUoS charges.
**The Electricity Regulation referred to in objective (d) is Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast) as it has effect immediately before IP completion day as read with the modifications set out in the SI 2020/1006.	

Proposer's assessment of the impact of the modification on the stakeholder / consumer benefit categories	
Stakeholder / consumer benefit categories	**Identified impact**
Improved safety and reliability of the system	**Neutral** Will not impact the operation of the transmission system.
Lower bills than would otherwise be the case	**Positive** The clarity provided (of the methodology) will help provide new offshore and onshore generation developers with greater confidence of what the applicable methodology and resulting tariffs will be, and so reduce investment risk, reducing overall costs to consumers.
Benefits for society as a whole	**Positive** Facilitates development of an integrated offshore network and the associated consumer cost, security of supply and environmental (fewer mudflat cable transitions) benefits compared to radially connected projects. Whilst also using the principles of locational signal, will ensure efficient and cost reflective development of the transmission system.
Reduced environmental damage	**Positive** Facilitates development of an integrated offshore network and the associated benefits towards achieving Net Zero.
Improved quality of service	**Neutral** Will not directly impact the quality of service provided by the ESO and offshore generators

When will this change take place?

Implementation date
1 April 2027 to ensure the methodology is place prior to the first offshore generator connecting within the HND. Note that the CMP315/CMP375 decision may also be made in time for implementation prior to 2027, if any variant or form of these modifications is approved.

Date decision required by
Following industry feedback, we believe generators wish to have visibility of and understand the application of the wider tariff to the HND by Q2/Q3 2024 (if possible), to allow this to be built into their business plans and aid any investment decisions.

Implementation approach
To be considered in the Working Group as the detailed solution is developed.

Proposer's justification for governance route
Governance route: Standard Governance modification with assessment by a Workgroup

This modification proposal has a material impact for industry parties in terms of investment decisions and associated costs, so should follow standard governance and given there may be several options to address the defect, a Workgroup is considered appropriate.

Interactions

☐Grid Code ☐European Network Codes	☐BSC ☐ EBR Article 18 T&Cs[1]	☐STC ☒Other modifications	☐SQSS ☒Other

There is a small degree of interaction between this modification and CMP315/CMP375. The outcome of CMP315/CMP375 should be taken into consideration for the solution of this modification where appropriate.

Acronyms, key terms and reference material

Acronym / key term	Meaning
CMP	CUSC Modification Proposal
CUSC	Connection and Use of System Code
HND	Holistic Network Design
TNUoS	Transmission Network Use of System
TO	Transmission Owner
WACC	Weighted Average Cost of Capital
OTNR	Offshore Transmission Network Review
EC	Expansion Constant
NGESO	National Grid Electricity System Operator
DC	Direct Current
AC	Alternating Current
MWkm	Megawatt Kilometres
HVDC	High-Voltage Direct Current (HVDC) circuits
ETYS	Electricity Ten Year Statement
EBR	Electricity Balancing Regulation
ESO	Electricity System Operator
STC	System Operator Transmission Owner Code
SQSS	Security and Quality of Supply Standards
T&Cs	Terms and Conditions

Reference material

- CMP324 & CMP325: Generation Zones – changes for RIIO-T2' & 'Rezoning – CMP324 expansion
- A Holistic Network Design for Offshore Wind | ESO (nationalgrideso.com)
- TNUoS Reform – a call for evidence
- TNUoS Taskforce
- CMP213: Project TransmiT TNUoS Developments
- CMP315: TNUoS: Review of the expansion constant and the elements of the transmission system charged for
- CMP375: Enduring Expansion Constant & Expansion Factor Review

[1] If your modification amends any of the clauses mapped out in Exhibit Y to the CUSC, it will change the Terms & Conditions relating to Balancing Service Providers. The modification will need to follow the process set out in Article 18 of the Electricity Balancing Guideline (EBR – EU Regulation 2017/2195) – the main aspect of this is that the modification will need to be consulted on for 1 month in the Code Administrator Consultation phase. N.B. This will also satisfy the requirements of the NCER process.