ESO

Workgroup Consultation

CMP413: Rolling 10-year wider TNUoS generation tariffs

Overview: This modification seeks to introduce an obligation on the ESO to publish generation tariffs for a rolling 10-year duration and provide the clarity to Users and developers on commercial decisions to support delivery of low carbon infrastructure (across generation and network) at least cost for consumers.

Modification process & timetable

1. **Proposal Form**
   16 March 2023
2. **Workgroup Consultation**
   11 September 2023 - 02 October 2023
3. **Workgroup Report**
   16 November 2023
4. **Code Administrator Consultation**
   27 November 2023 - 18 December 2023
5. **Draft Final Modification Report**
   18 January 2024
6. **Final Modification Report**
   06 February 2024
7. **Implementation**
   01 April 2024

Have 5 minutes? Read our Executive summary

Have 45 minutes? Read the full Workgroup Consultation

Have 120 minutes? Read the full Workgroup Consultation and Annexes.

Status summary: The Workgroup are seeking your views on the work completed to date to form the final solution to the issue raised.

This modification is expected to have a: High impact
Generators, Suppliers, ESO, Demand Users, Consumers

Governance route	Standard Governance modification is being assessed by a Workgroup	
Who can I talk to about the change?	**Proposer:** Binoy Dharsi Binoy.dharsi@edfenergy.com Phone: 07790893373	**Code Administrator Chair**: Claire Goult Claire.goult@nationalgrideso.com Phone: 07938737807
How do I respond?	Send your response proforma to cusc.team@nationalgrideso.com **by 5pm on 02 October 2023.**	

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Executive summary

This modification seeks to introduce an obligation on the ESO to publish generation tariffs for a rolling 10-year duration and provide the clarity to Users and developers on commercial decisions to support delivery of low carbon infrastructure (across generation and network) at least cost for consumers.

What is the issue?

The current TNUoS charging methodology sets transmission charges for the coming year, just 2 months ahead, based on the existing network and expected generation and demand. With the unprecedented scale of transmission investment this decade, and beyond, and the generally long development timeframes for low carbon generation, the current TNUoS methodology will, in the view of the Proposer, fail to meet this objective.

What is the solution and when will it come into effect?

Proposer's solution: ESO to publish a wider generation tariff for each generation zone (currently 27) for a rolling 10-year period. For each subsequent 10-year tariff publication, if tariffs in any generation zone breaches a pre-defined range for the years in the initial forecast, charges are capped/floored at this pre-defined range for that generation zone for each charging year.

Implementation date: 1 April 2024

What is the impact if this change is made?

The solution will provide assurances to Users of the Transmission system on their future TNUoS liability, and a centralised forecast will better facilitate competition whilst ensuring a level playing field for all Users. The ESO has a responsibility to ensure that Users TNUoS contributions reflect the use of system charging methodology and the licence conditions of the Transmission businesses. Providing longer term tariffs will reflect expected developments on the transmission system.

Interactions

None identified.

What is the issue?

TNUoS charges are designed to give long-term siting signals to support the economic development of the transmission network. With the unprecedented scale of transmission investment this decade, and beyond, and the generally long development timeframes for low carbon generation, the current TNUoS methodology will, in the view of the Proposer, fail to meet this objective.

As part of the Offshore Transmission Network Review, the ESO set out its Pathway to 2030 Holistic Network Design (HND) in July 2022. This is its recommended integrated transmission network blueprint to enable the connection of 50GW of offshore wind. The HND represents the largest investment plan in critical electricity transmission networks since the 1950s and 1960s. A further iteration of the HND is due in 2023 which is expected to recommend further transmission investment.

The current TNUoS charging methodology sets transmission charges 2 months ahead for the coming year based on the existing network and expected generation and demand. The ESO committed to producing a non-binding set of scenarios (in Q3 2023) to provide guidance of TNUoS locational signals (Generators face locational signals through the wider TNUoS tariff) reflecting the significant changes expected this decade.

Locational signals should play an important role to support economic development of the transmission network but the fact that there is no realistic[1] forward view of TNUoS charges at a time when they are likely to materially change, coupled with the unprecedented investment in low carbon generation this decade, means that there could be financial risks for consumers. The ESO, since this modification was raised agreed to publish a 10-Year Projection [of TNUoS tariffs] in September 2023. This will be available on the ESO website.

In particular, the current TNUoS charges, in the view of the Proposer lacks a useful siting signal and will mean that Generators locate in less economically efficient places for the overall system leading to higher system costs and uneconomic development of the transmission system., In addition the cost of transmission will not be correctly assessed by low carbon developers through the Government's Contract for Difference (CfD) auctions. This could lead to windfall gains and losses to developers leading to higher investment costs (cost of capital) as risks materialise.

Why change?

The scale of low carbon generation deployment this decade[2] (85-143GW) will require unprecedented transmission investment. This has the potential to materially impact TNUoS charges. While TNUoS charges are long term signals they do not reflect known or expected changes to the network or demand/supply changes meaning they do not provide a useful siting signal at a time of material system change.

With the significant levels of transmission investment being taken forward this decade it is unreasonable, in the view of the Proposer, to expect existing and prospective Users to forecast future TNUoS contribution with any degree of certainty. This is because the

[1] ESO publishes a forward looking 5-year forecast which does not fully reflect the reinforcements projected
[2] https://www.nationalgrideso.com/future-energy/future-energy-scenarios

methodology for calculating TNUoS charges is complex, and the ESO is the only party with full access to the model used and the full set of input assumptions. It is not possible, in the view of the Proposer, for any other party to generate a reliable independent forecast. This uncertainty undermines the 'usefulness' of an investment signal from TNUoS.

TNUoS can form a significant proportion of the cost to developers in renewable generation. An accurate forecast will allow for bids into low carbon generation auctions (CfDs) to be more accurate reducing risks for all prospective Users.

CfD costs for Generators are recovered from consumers through a CfD charge. An inaccurate bid into a CfD auction, due to unpredictable TNUoS charges, can either lead to a windfall gain or loss for that Generator. A windfall gain would result in a greater proportion of cost being recovered through the CfD charge. A loss for a Generator could lead to the project no longer proceeding. Developers who note this trend may increase their bid into future rounds to replace capacity that has exited, and this too could feed into higher CfD charges recovered from consumers. This uncertainty risk could also feed into the cost of capital to finance low carbon generation.

On the 13 July 2022 Ofgem presented the scope of the TNUoS Task Force which stated that it would like to resolve "How do we make TNUoS a better investment signal to investors".

Following the hiatus in Task Force meetings towards the end of 2022 (letter published 8th November 2022), Ofgem released a further update on 3rd March 2023 where they confirmed that the Task Force would resume in April 2023 with its intended mandate "*designed to address the issue of unpredictability in TNUoS charges*".

Ofgem further stated that the work the ESO (and the consultants it employed) undertaken during the hiatus period should "*support members in considering further the issue of how to improve predictability in arrangements*".

This modification provides a route to achieve the objectives of the Task Force.

What is the solution?

Proposer's solution

- ESO to publish a wider generation tariff for each generation zone (currently 27) for a rolling 10-year period.
    - This process could work alongside the ESO's annual Centralised Strategic Network Plan (CSNP) assessment (which builds upon the holistic network design work), i.e., a set of transmission tariffs are published alongside the ESO vision for the future transmission network.
- The timetable for the final TNUoS tariff publications does not change.
- For each subsequent 10-year tariff publication, if tariffs in any generation zone breach a pre-defined range (proposed to be set as non-inflated +/- £/kW value per generation charging zone), for the years in the initial forecast, charges are capped/floored at this pre-defined range for that generation zone for each

charging year. The justification is that locational signals are only useful if they can be pre-determined over a reasonable period.

- Any adjustment mechanism would only come into effect if any subsequent tariffs published by ESO from its initial forecast differ by an amount outside of the pre-defined range. A practical situation where this could occur is a delay, say by 1 year, in the construction of a material transmission reinforcement and its subsequent modelling in the DC Load Flow (DCLF) Model.

- The net difference in the TNUoS tariff (if it breaches the pre-defined range) across all generation zones would be recovered through demand TNUoS tariffs.

- The Cap and Collar range will increase over the 10-year forecast period recognising the high degree of certainty in year 1 and much larger uncertainty in year 10.

The following (non-indexed) bands are proposed:

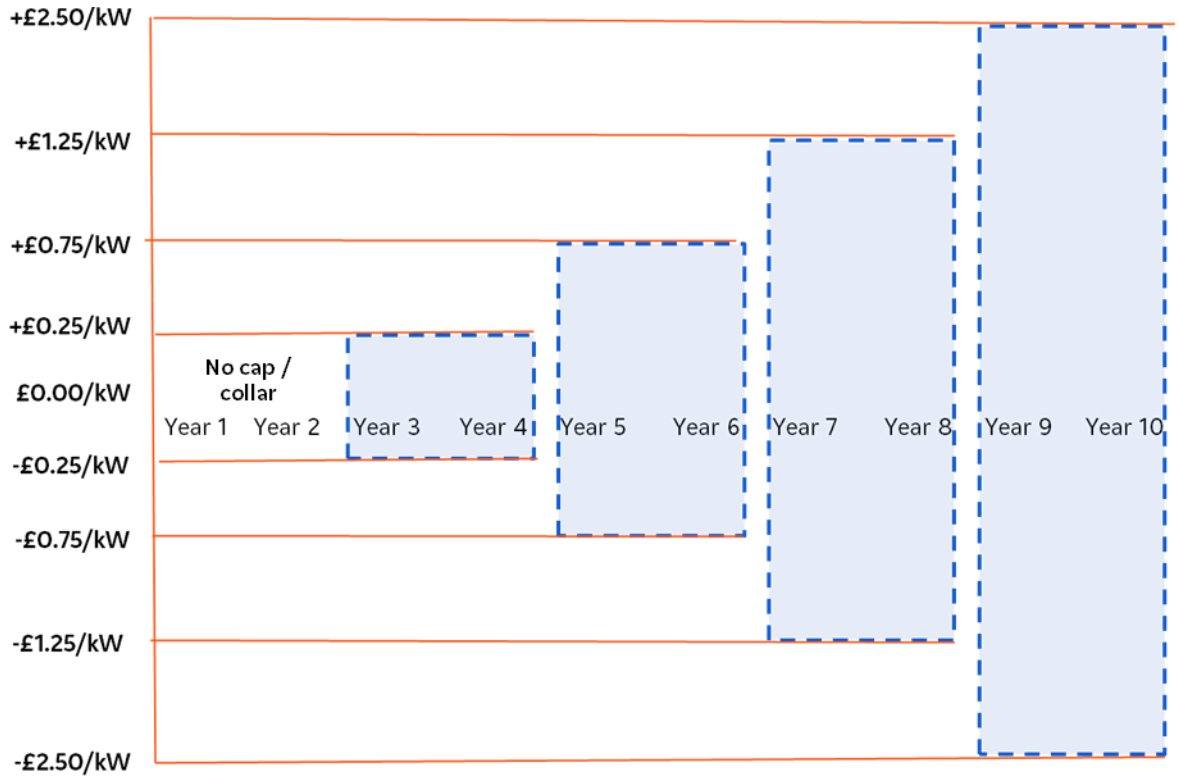
Limit for the Initial (baseline) Forecast (published prior to 1st April 2024)	**Cap / Collar range**
Charging Year 1 (2024/5) and Charging Year 2 (2025/6)	No cap/collar
Charging Year 3 (2026/7) and Charging Year 4 (2027/8)	+/-£0.25/kW
Charging Year 5 (2028/9) and Charging Year 6 (2029/30)	+/-£0.75/kW
Charging Year 7 (2030/31) and Charging Year 8 (2031/32)	+/-£1.25/kW
Charging Year 9 (2032/33) and Charging Year 10 (2033/34)	+/-£2.50/kW

Second Forecast (published prior to 1st April 2025 and adhering to relevant cap/collars)	Cap / Collar range
Charging Year 1 (2025/6)	No cap/collar
Charging Year 2 (2026/7)	+/-£0.25/kW
Charging Year 3 (2027/8) and Charging Year 4 (2028/9)	+/-£0.25/kW
Charging Year 5 (2029/30) and v Charging Year 6 (2030/31)	+/-£0.75/kW
Charging Year 7 (2031/32) and Charging Year 8 (2032/33)	+/-£1.25/kW
Charging Year 9 (2033/34) and Charging Year 10 (2034/35)	+/-£2.50/kW

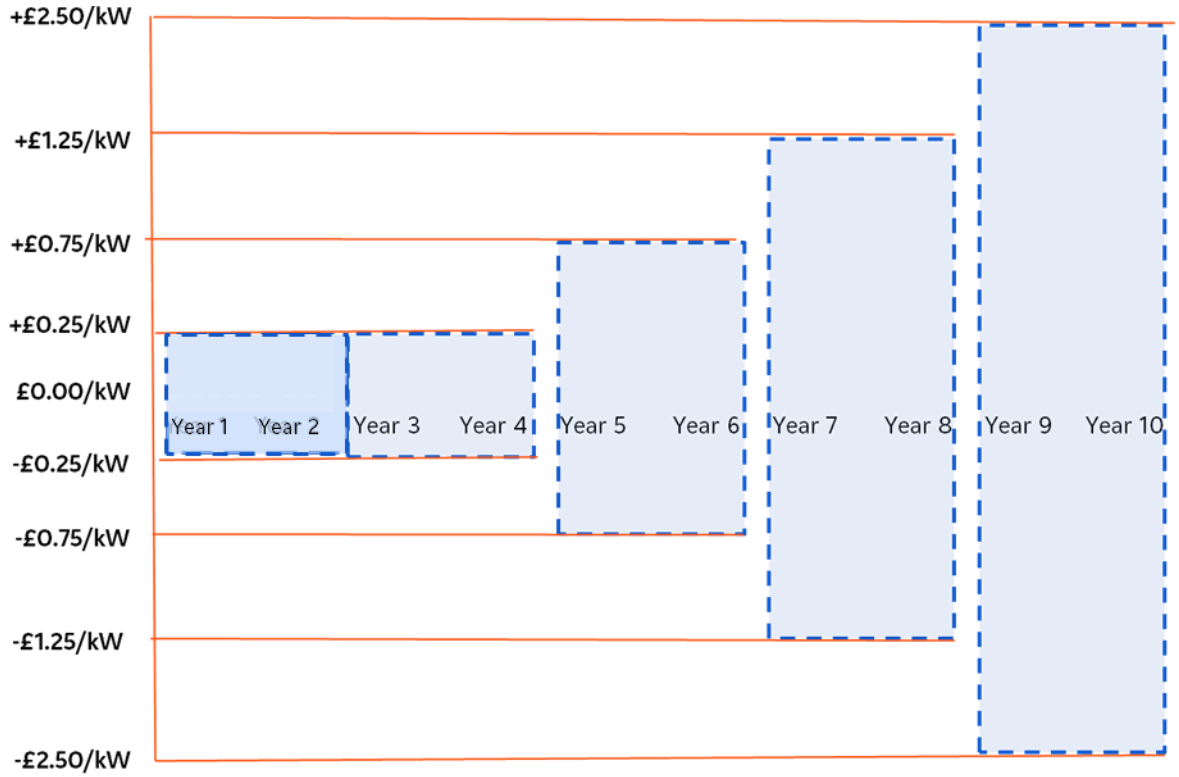
Third Forecast (published prior to 1st April 2026 and adhering to relevant cap/collars)	Cap / Collar range
Charging Year 1 (2026/7) and Charging Year 2 (2027/8)	+/-£0.25/kW
Charging Year 3 (2028/9) and Charging Year 4 (2029/30)	+/-£0.25/kW
Charging Year 5 (2030/31) and Charging Year 6 (2031/32)	+/-£0.75/kW
Charging Year 7 (2032/33) and Charging Year 8 (2033/34)	+/-£1.25/kW
Charging Year 9 (2034/35) and Charging Year 10 (2035/36)	+/-£2.50/kW

Limit for subsequent forecast publications	Cap / Collar range
Charging Year 1 and Charging Year 2	+/-£0.25/kW
Charging Year 3 and Charging Year 4	+/-£0.25/kW
Charging Year 5 and Charging Year 6	+/-£0.75/kW
Charging Year 7 and Charging Year 8	+/-£1.25/kW
Charging Year 9 and Charging Year 10	+/-£2.50/kW

Cap and Collar adjustments as per the initial/baseline forecast year



Cap and Collar adjustment to a normal year forecast



We would expect the ESO's initial 10-year forecast to not reflect any significant changes in Year 1 and Year 2 (i.e., the delay of a material transmission reinforcement) and therefore our Original proposal passes this risk entirely to Generators.

Once the initial forecast has been set, Generator tariffs are bound by the cap/collar as proposed in the Original proposal.

If the ESO forecasts are within the Cap and Collar range (where it applies), the Cap and Collar range will not be active.

To demonstrate how tariff setting and the Cap and Collar mechanism could work in practise the following example has been modelled.

Case study for ESO material forecast error:

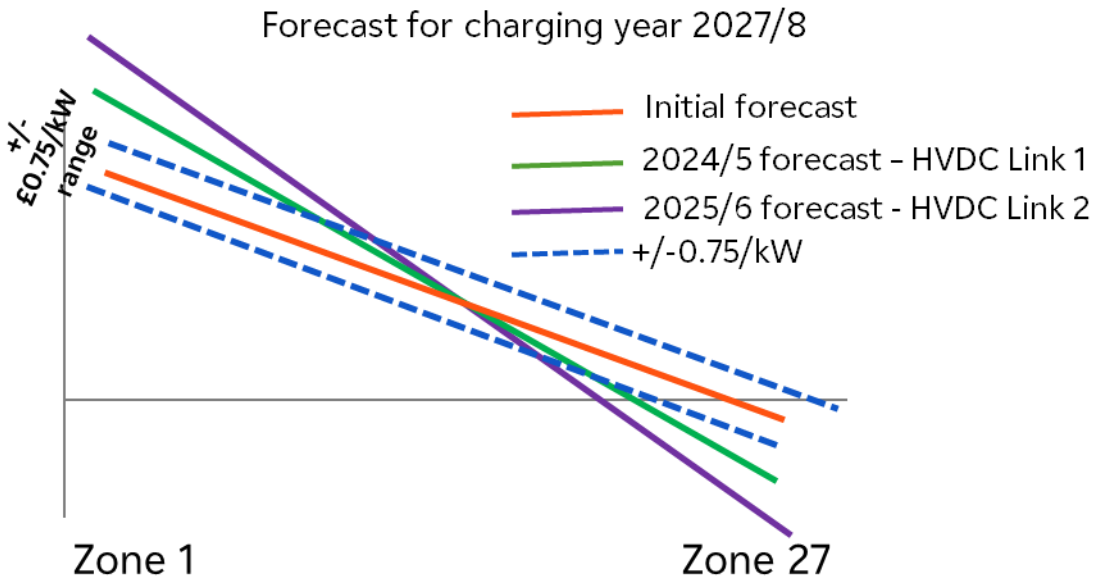
We have used a realistic but extreme change to the permutations that the ESO could have modelled for the construction of two new significant transmission links (in this case two Eastern High Voltage Direct Current (HVDC) cable expected later this decade), i.e., timing changes that could have varied from the first tariff forecast it produced. In the case study we assume that the ESO publishes an initial forecast in 2022/3 for the 2027/8 charging year. This assumes that the new HVDC cables connect in 2028/29 and are not included in the tariff. In subsequent years, 2023/4 and 2024/5 it creates two further forecasts for the 2027/8 charging year modelling different timings for the connection of a new Eastern HVDC cable.

In 2023/24 forecast it assumes early commissioning by one year of one HVDC cable impacting tariffs in 2027/28. In the 2024/25 forecast it then assumes early commissioning of both HVDC cables impacting the tariffs for 2027/28 further.

Modelling a new Eastern HVDC link into the DCLF model makes the generation curve steeper. Individual Generators will face either an increase or decrease in TNUoS cost contributions.

Subsequent tariffs are bound by a Cap and Collar set in each of the 10 years.

The graph shows that whilst the curve gets steeper in the two subsequent forecasts only the area outside of the Cap and Collar is subject to be recovered through demand tariffs.



As we have identified, when the cap/collar is breached, i.e., the ESO's forecast deviates from its initial forecast outside of the Cap and Collars set, the net amount (negative or positive) is recovered through demand TNUoS tariffs.

To show the impact this can have to demand tariffs we have taken an example of a £0.75kW Cap and Collar range. After netting the individual cost impact from each Generator in the 2023/4 forecast, demand tariffs increase by ~0.75% (£23m). Generators should recover £108m but due to the cap/collar limitations it only absorbs £108m minus the £23m (£85m). In the 2024/5 forecast, as the limit of the cap/collar has been reached for that charging year demand recovers an additional £62m (~2%). Demand revenue has been assumed at £3bn.

Updates to forecast	HVDC Link 1 2027/8 Adjustment to Generation tariff	HVDC Link 2 2027/8 Adjustment to Generation tariff	2027/8 Demand adjustment for any positive and negative tariffs over £0.75/kW	2027/8 Demand revenue adjustment for any positive and negative tariffs over £0.75/kW
2023/4	Cannot collect £108m from generators, so cap is reduced by 1.04/kW		£23m	+0.76%
2024/5		Cannot collect £62m from generators, so cap is reduced by 0.59/kW	£62m	2%

We have detailed below the step-by-step process:

Step 1: In advance of Charging Year 1 a set of Wider tariffs for each of the 27 generation zones is generated for a 10-year period by the ESO.

Step 2: For each subsequent Charging Year a further set of tariffs is published for a 10-year period

Step 3: This subsequent tariff publication will replace any previous forecast with a further year of tariffs added. (9 years will be updated + an additional new year will be added)

Step 4: If any of the tariffs replaced by a subsequent forecast is within the Cap and Collar range then the tariff in each of the 27 generation charging zones is adjusted.

Step 5: If any of the subsequent tariffs for any of the 27 generation zones exceeds +/- cap/collar, then the generation tariff is adjusted by the maximum of that cap/collar.

Step 6: Excess positive and negative tariffs outside of the cap/collar range will be netted across all generation zones and this residual (whether positive or negative) will be recovered through demand TNUoS tariffs

This modification seeks to recover, from Demand Users, the revenue that is derived breaching the cap/collar. In Annex 11 (cell F:32) by inserting a value into this cell you can determine the overall impact to demand tariffs for customers. The adjustment is made in column L. The July 2023 TNUoS forecast has been used. A negative value (breach of the collar) will reduce the recovery from demand customers; a positive value (breach of the cap) will increase the recovery from demand customers.

Workgroup considerations

The Workgroup convened 7 times to discuss the perceived issue, detail the scope of the proposed defect, devise potential solutions, and assess the proposal in terms of the Applicable Code Objectives.

Terms of Reference Update (Annex 2 and 3)

The Chair shared the Terms of Reference. A Workgroup member stated they were uncertain as to what the ask was for section (c) and another Workgroup member suggested that the wording in section (f) needed altering to avoid confusion. The Proposer and another Workgroup member agreed to explore the phrasing.

These were discussed at length by the Workgroup, it was decided that three sections need to be updated. Several suggestions were made by Workgroup members. The Workgroup agreed the amending of sections c) and f) as proposed. The two options for section (e) were discussed and the Workgroup agreed to go with the first option – Consider the interaction between cap/floor as set by 838/2010 (“Limiting Regulation”) and the cap/collar as proposed by the modification.

The Chair confirmed the revised Terms of Reference had been approved by Panel on 30 June 2023.

Consideration of the proposer’s solution

The Proposer advised the Workgroup that CMP413 was raised to fix the output rather than the methodology. Some of the streams of work identified in other modifications and the TNUoS Task force looked at changes to inputs and methodologies. Ofgem concluded that CMP413 could therefore proceed in parallel with the work underway as there was no conflict.

The Proposer explained how the proposal had been put together on the back of numerous engagements with industry from September 2022 and advised the Workgroup group that the Original solution weighted up the conclusions of these engagements to

find an appropriate balance of predictability and cost reflectivity. It was important that Generators continued to face some risk and therefore the proposal reflected this.

Workgroup members discussed the Proposer's solution (**Annex 4**). One Workgroup member asked if it was possible for the Proposer to pick out a few of the 27 generation zones and illustrate what could happen over time to understand how it works on a rolling basis and how the individual limits that are being set interact with each other in the years beyond Year 10. In response to the workgroup member's request the Proposer developed a spreadsheet, **Annex 8**. This demonstrated how one Zone would work under the Original proposal. Users can input values to see how tariffs would move with a Cap and Collar in place. The Proposer made one of the years interactive to allow users of this spreadsheet to be able to work out how the Original proposal treated tariff forecasts. The model works by inserting a starting "initial" forecast for a Generation Zone in cell C15. By then inserting updated values to simulate subsequent updates from the ESO in cells D15:M15 the graph changes to show the impact to tariffs.

With respect to the perceived cliff edge that this modification would create in Year 11, the Proposer suggested the possibility that the ESO might provide a forecast in Year 11 onwards if they have the information to give an indication at any point. The intention to set the forecast for 10 years was to provide investment signals and predictability to low carbon Generators in particular, so the Proposer was comfortable that the 11th year may be high/lower than the previous year but would be known many years in advance.

The Proposer mentioned a presentation that had been shared with TCMF giving some live examples that may help the group.

The Proposer agreed to share a document in the next Workgroup to look at examples in detail along with the TCMF presentation.

This example showed the financial impact table of a change in an HVDC cable that was part of the ESO's 5-year tariff forecast update and is referenced in the section "Case study for ESO material forecast error" in this report."

The ESO Representative highlighted that the Original solution relies on the ability of the ESO to produce a ten-year forecast. Some of the newer cables were not prescribed under the CUSC and therefore assumptions would need to be made on this. Several different assumptions were presented at TCMF which have not received any feedback from industry. It was suggested that these assumptions be brought to this Workgroup as it is important to understand what the inputs and methodologies were being used to derive forecasts for a longer period of time.

In the Workgroup a conversation about applying a percentage variance as opposed to a hard fixed £/kW or an indexation to the Cap and Collar. A few Workgroup members explained that investors, in particular Finance Directors, preferred known risk. Adding indexation would further add a level of risk.

Consideration of CMP413 Interactions

The Proposer indicated that the suggested implementation date of 1 April 2024 could be subject to delay due to the interaction of CMP413 with several other in-flight modifications.

Live Mods (CMPXXX)/ TNUoS Task Force (TF)	Interaction with CMP413
CMP315/CMP375	Is compatible but must adhere to the Cap and Collar for each charging year
TF: Reference Node reforms	Is compatible but must adhere to the Cap and Collar for each charging year
TF: Backgrounds reforms	Is compatible but must adhere to the Cap and Collar for each charging year. Additional or reduced Backgrounds can only apply after a minimum of 10 years (although re-opener decision could become effective if Workgroup deem appropriate)
TF: Input reforms	Is compatible but must adhere to the Cap and Collar for each charging year
TF: Shared/Not-Shared	Is compatible but must adhere to the Cap and Collar for each charging year
CMP419	If no changes to number of generation charging zones, this is compatible but must adhere to the Cap and Collar for each charging year. If number of generation charging zones change this is not compatible with CMP413 until the first new forecast year provided by the ESO (i.e. minimum of 10 year lag)

The Proposer acknowledged that Ofgem would need to take these into consideration when making the final decision on the proposal.

The Authority Representative mentioned, regarding the implementation side, that it was almost certain that an Impact Assessment would be required once the Code Administrator Consultation and the Final Modification Report had been received. It was explained to the Workgroup that Ofgem are required to complete this consultation by law when it is considered that the modification will have a significant impact. The Authority Representative believes CMP413 meets that criterion and therefore Ofgem will be unable to make an immediate decision when the Workgroup concludes.

ESO SME - 10-year TNUoS Tariff Scenarios & HND Methodology Options (**Annex 5**)

To achieve a 10-year Wider Generation rolling set of tariffs (as is the requirement in CMP413) the ESO will be required to produce a set of tariffs. As part of their non-binding commitment in Q1 2023 the ESO agreed to publish a set of 10-year scenarios that would be published in September 2023. In Workgroup discussions the ESO clearly explained that the production of a non-binding set of tariff scenarios is different from a binding forecast. Many of the obstacles are assumptions that need to be factored into deriving tariffs. In some instances, the CUSC is silent on some of the methodology required and therefore a pragmatic agreement has been reached. None-the-less with a set of assumptions, a set of tariffs for a period of 10-years can be produced.

The ESO SME (Subject Matter Expert) explained the objectives and constraints of the 10-year TNUoS tariff scenarios importantly noting the uncertainties being faced in the

next 10 years. The SME also discussed the proposed scope of the forecast and outlined two options to combat the HND methodology challenge:

- Option 1 – Treat DC circuits as if they were AC circuits
- Option 2 – 'Even spread' of flows at junction points

The SME described the objective was to keep the tariff calculation relatively simple and easy to understand whilst retaining the locational signals and shared a detailed diagram to explain each option.

During one of the earlier Workgroup meetings the SME explained that one of the crucial assumptions required to be resolved was the treatment of the HVDC circuit (where it was not prescribed within the CUSC) and an appropriate flow direction on the HND HVDC circuit.

The Workgroup were asked which of the options presented on the assumptions used was preferred. It is worth noting that the Workgroup has no governance on how a binding 10-year forecast is produced, this is determined by the ESO and the rules under the CUSC. In terms of the 10-year non-binding forecast, the Workgroup did have a preference.

In a subsequent meeting the SME confirmed some of the parameters it would use to derive the 10-year non-binding TNUoS scenarios.

The SME confirmed it was predominantly from North to South and informed the Workgroup this information was taken from Ofgem's decision on OTNR asset categorisation (**Annex 6**). As part of this presentation the SME shared a revised diagram for Option 1 explaining it was initially thought that the Lincolnshire connection node was not yet energised. However, the most recent HND report and Ofgem's ASTI decision, confirmed that Lincolnshire-Humber double circuits have brought forward from 2031 to 2030. The SME advised the group that both options to combat the HND methodology challenge had been taken to TCMF where Option 1 was the preferred choice. Several Workgroup members agreed that this was also their preferred option.

It is important to note the Workgroup is not proposing to define the process used to create the 10-year forecast by ESO but has discussed some possible options (**Annex 14**).

<u>Cap and Collar mechanism – Tariff Methodology (**Annex 7**)</u>

The Cap and Collar mechanism is a crucial component in this modification. When explaining this at high level it can be easy to interpret. However, when trying to demonstrate this visually through excel spreadsheets there are several elements that need to be understood in more detail. For that reason, the first three Workgroup meetings concentrated on achieving some consensus of the detailed mechanisms.

The Proposer initially shared the Cap and Collar mechanism for the tariff methodology with the Workgroup. It was apparent after the many questions raised by several Workgroup members that there were deficiencies in the way it was presented. The Proposer offered to look at another way of demonstrating the methodology and acknowledged how the presentation might cause confusion. The Workgroup agreed that the complexity of the subject matter meant it was difficult to summarise in a single slide. One Workgroup member suggested having a spreadsheet so members could add in

details themselves to see how the methodology would work in practice. The Proposer agreed to take an action to update the presentation.

10-year forecast example tool (**Annex 8**)

The Proposer shared a Forecast Example Tool with the Workgroup members for them to comment on. The example used was from a "real life" example from a publication by the ESO on the most recent 5-year forecast. A member suggested that it might be useful to have extreme scenarios to see how the cap and floor worked for each year. Another member agreed and adding different scenarios to work through would bring the tool to life for the Workgroup. A member suggested the possibility of making the spreadsheet more readable by using the tariffs in the five-year view.

The spreadsheet provided by the Proposer was developed so that different permutations could be entered which would then determine the impacts. Users are able to input values to see how tariffs would move with a Cap and Collar in place. The Proposer made one of the years interactive to allow users of this spreadsheet to be able to work out how the Original proposal treated tariff forecasts. The model works by inserting a starting "initial" forecast for a Generation Zone in cell C15. By then inserting updated values to simulate subsequent updates from the ESO in cells D15:M15 the graph changes to show the impact to tariffs.

A Workgroup member asked if the Proposer considered recovering any cap/collar breach from all Generators as opposed to demand customers. The Proposer said it had considered this but explained that the demand base was very large in comparison to the generation base and therefore the impact recovered over a larger base would have less impact. To demonstrate the impact the Proposer developed a spreadsheet, **Annex 12**, to show the impact a breach to the cap/collar would have on Generators.

Alternative representations of the Proposer's original 10-year forecast example tools

In two further Workgroup meetings, two Workgroup members presented their spreadsheet explanation of the modification along with the updated Proposer's view (**Annex 9 and 10**). The Workgroup members broadly accepted that each mechanism achieved a similar result to the intention of the modification defect albeit using different approaches. The Proposer said he was agnostic to each of the variations presented although their original forecast, now being clarified, may achieve a simpler legal text and therefore be marginally preferable.

As mentioned above the Proposer stated a willingness to consider other approaches which achieved the same goal as the proposal. The proposal and mechanism derived by the Proposer was just one of many ways of achieving broadly the same outcome.

One Workgroup member presented their variation of how the Cap and Collar methodology (**Annex 9**) could be interpreted, explaining it was an attempt to interpret the proposal in a simple way but the principle of keeping the forecast within range was the same. Several Workgroup members agreed this interpretation was much clearer. One member suggested expanding the example beyond Year 11 as there were concerns an unintended consequence may be a potential tariff jump after 10 years.

A second example shared by another Workgroup member of how the Cap and Collar methodology could work proposed another variation of the tariff methodology (**Annex**

10). The member stated that the differences in this method are highlighted in red on the principles section.

The Proposer suggested variations of the methodology put forward by two members of the Workgroup should be evaluated offline prior to the next Workgroup. It was agreed that the same data should be used for all examples for comparisons to be made. An action was taken to circulate the three variations in methodology to the Workgroup.

The Proposer confirmed the objective for sharing the examples was to go through the alternative ways of trying to reach a banded approach. Each had a slightly different interpretation of a solution to the defect however the end result was essentially the same, it provided assurance of predictability.

The second example shared (**Annex 10**) gave a slightly different view from the previous one and the member discussed in further detail what the lines on the graph represented. They explained that the additional red and blue line was to show a forecast when a tolerance is set for each year. A Workgroup member required clarification on the purpose of the examples. It was confirmed that the graphs produced were an interpretation of the Proposer's modification and to demonstrate how the first part of capping would work.

A question was raised regarding why the capping on the graphs were shown in pounds to kilowatt and not percentage. The member responded advising that percentages were looked at but on balance the absolute figure would be more proportional and easier to interpret. Another Workgroup member then further clarified that TNUoS charges have historically been assessed against a change in £/kW and agreed with the Proposer's user of this measurement.

A Workgroup member was concerned that the examples shared were doing very different things to that shown on the Proposal Form. The crux of this was that there were two parameters that needed to be satisfied but the Proposal form tended to concentrate on the Cap and Collar banding when it fanned in from £2.50/kW to £0.25/kW. The Proposer agreed that this could be made clearer and subsequently added a further table and paragraph to capture this (**Annex 1**).

The Workgroup concluded that the manner in which a forecast is derived by the ESO is for them to decide. There are components of the existing Annual published tariffs that use the concept of "best view". This is the term used when modelling TEC, for example. To provide some possible ways that the ESO could develop some of the allocation of cap or collars into the wider tariff, the Workgroup discussed a proposal created by the Proposer (**Annex 12**, 'assumption' tab). This demonstrated how each of components (Peak, Year-Round Shared and Year-Round Not Shared) that feed into the wider generation tariff could recover a proportion to meet the Cap and Collar arrangements for each of the forecasting charging years. Another Workgroup member suggested an alternative approach. Both these approaches were deemed acceptable, and the only difference is the trade-off between simplicity and cost reflectivity, this is more a subjective decision and assessment. The Workgroup concluded this was a matter for the ESO to determine as the Proposer, was certainly agnostic to any reasonable and practicable solution identified.

The Workgroup developed the following table to provide a high-level summary of the Workgroup discussions, referencing the Terms of Reference and any noteworthy commentary. This should be read in conjunction with the consultation.

Workgroup discussion	Terms of Reference	Additional notes
Cap and Collar – what is the appropriate level to set these at	c) - The proposal is for wider generation tariffs to be within the pre-defined cap/collar range for each generation zone and charging year. Consider the requirement for a Cap and Collar and consider what the pre-defined range should be?	Workgroup discussed that 1) The initial forecast should protect demand customers against any changes in Y0 and Y1 of the forecast. All risk is passed onto Generators. 2) The Proposer spoke with developers on an appropriate level of risk between Generators and Demand Users. It was clarified that should the subsequent forecasts from the ESO after the initial forecast was published remains within the Cap and Collar levels, no transfer of costs would be made between Generators and Demand Users.
The Workgroup discussed the trade-off between cost reflective tariffs and predictability. With tariffs constrained by a forecast made 10 years ahead, with lots of uncertainty, there is a weaker link between price signals and network requirements. This could lead to increased constraint costs, and therefore cost to consumer. Cost reflectivity and predictability trade-offs could be broadly categorised into two areas: **1. Charging related reforms** Changes to an input into the Transport and Tariff model (i.e., CMP315/CMP375 – expansion constant) could be incorporated within the Original proposal and would be subject to the Cap and Collar rules.	b) - Consider the length of time the TNUoS Generation tariffs are fixed for	Workgroup members asked if a re-opener was appropriate where a change would be beneficial to Users more widely. Proposer responded saying timing of implementation of modification is out of scope of this modification. It can only assess the defect within this proposal. A future modification would need to take into consideration CMP413 and decide on whether this would supersede it. This was out of scope of this modification but was acknowledged and discussed.

2. Structural related reforms Changes to the structure of tariff collection (i.e., CMP418 – changes to the number of generation zones or an additional charging component as has been discussed in the TNUoS Task Force) would not apply to tariffs already forecasted. The change could be made when the ESO publishes their first forecast for a new year (i.e., the 11th year)		
Proposer demonstrated through their worked example spreadsheet (**Annex 8 and Annex 13**) that in all situations the methodology used to derive tariffs met the Limiting Regulation	e) Consider the interaction between the cap/floor as set by 838/2010 ("Limiting Regulation") and the cap/collar as proposed by the modification.	Whilst there was a demonstration of a situation where it was more likely to breach the floor of the Limiting Regulation this was demonstrated as being highly unlikely
Annex 11 provided an interactive spreadsheet to demonstrate impact to demand customers	f) Consider the impact on demand TNUoS tariffs as a result of net the difference in revenue from the adjustment made to TNUoS Generation tariffs (if it beaches the pre-defined cap/collar range).	**Annex 12** was created to model the impact of recovery of any breach to the Cap/Collar on Generators only.
Ofgem hold ultimate responsibility to approve modifications and the acceptable balance between cost reflective and predictability. Workgroup members discussed whether the Original proposal should contain a clause to allow a material change to be reflected. The Proposer was against this. A possible mitigation would be in relation to ToR b) and an alternative proposal with a shorter fixed term be proposed. The Workgroup cannot pre-determine what reform would be	d) Consider whether criteria need to be set to allow for the Cap and Collar to be waived in certain circumstances (e.g., for material changes to the TNUoS methodology)	The TNUoS Task Force has highlighted several deficiencies that would merit being addressed. It would be for the Authority to decide in what order this be progressed as interdependencies on proposed or current live modifications is now within the control of this Workgroup or modification

raised in future and so this was hard to assess.		
The Workgroup spent a great deal of time understanding the rationale of why a 10-year forecast was set. It tied into the Proposer's discussions with developers on the time scale of investments made. There were no alternative proposals put forward by Workgroup members.	b) Consider the length of time the TNUoS Generation tariffs are fixed for	Workgroup members suggested a question be added to the consultation to address this issue (Question 6).
A spreadsheet by the Proposer was included to show the impact to Consumers on their demand tariff contribution	g) Consider the impact on the Transmission Demand Residual and consumers.	**Annex 11**
The Workgroup members discussed that the Original CMP413 proposal improved predictability to Users. It could not pre-determine the impact of other proposed or live modifications. As discussed in conjunction within ToR b) and d) there is a balance between length of predictability and allowing other cost reflective changes to be made. The Proposer re-affirmed that when developing the proposals for CMP413 developers' feedback was for predictability between 7 and 10 years. * (see below)	h) Consider interactions with wider potential TNUoS developments e.g., TNUoS Taskforce and Review of Electricity Market Arrangements (REMA).	The TNUoS Task Force has highlighted many reforms in TNUoS charging methodology. This is not disputed, and non-structural charging reforms are compatible with the Original proposal. Structural or radical reforms are intentionally being protected though the CMP413 Original proposal.
The Workgroup discussed in what situation a re-opener would be appropriate. The Original proposal can reflect charging reforms but not structural changes until the 11th year of the forecast.	i) Consider the trade-off between cost-reflectivity and certainty/predictability.	At the time of consultation preparation (September 2023) there are no structural proposals currently awaiting determination by the Authority. CMP418 identifies a defect where a change to the number of generation charging zones may be a solution. Workgroup identified questions to ask in the

		consultation to draw out any suggestions around this area.

https://windenergyireland.com/images/files/iwea-onshore-wind-farm-report.pdf

Draft legal text

Legal text will be drafted after the Workgroup Consultation has been completed.

What is the impact of this change?

Proposer's assessment against Code Objectives

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 Providing assurances to Users of the transmission system on their future TNUoS liability is essential. It is inconceivable that existing and potential Users are faced with an uncertain cost projection on the TNUoS liability. Providing a centralised forecast will better facilitate competition and ensure a level playing field for all Users.
(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 Networks charges would align with / be based on transmission owner's investment plans.
(c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is	Positive

reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses;	The ESO has a responsibility to ensure that Users TNUoS contributions reflect the use of system charging methodology and the licence conditions of the Transmission businesses. Providing longer term tariffs will reflect expected developments on the transmission system.
(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 Users need 'useful' signals as identified within the scope of the 2022 TNUoS Task Force scope set out by Ofgem. Providing a longer-term central forecast of TNUoS tariffs will be more efficient for Users.
**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
Lower bills than would otherwise be the case	Positive More useful TNUoS signal enables the deployment of low carbon generation to be optimised. This will reduce costs to consumer sin the long run.
Benefits for society as a whole	Neutral

Reduced environmental damage	Neutral
Improved quality of service	Neutral

Standard Workgroup consultation question: Do you believe that CMP413 Original proposal better facilitates the Applicable Objectives?

When will this change take place?

Implementation date
TBC – the Proposer ideally would be seeking the publication of a 10-year forecast for 1 April 2024 to provide predictability to Users as soon as practically possible. The cap and floor become effective for the first time in Year 3 (1 April 2026).

Date decision required by
TBC

Implementation approach
ESO will need to develop a 10-year TNUoS forecast (work has started on this but not clear at this time how long this will take to finalise).

Changes would be required to tariff and charging processes and Billing systems, but these changes may only be required once the cap and floor becomes active.

Standard Workgroup consultation question: Do you support the implementation approach?

Interactions

☐Grid Code	☐BSC	☐STC	☐SQSS
☐European Network Codes	☐ EBR Article 18 T&Cs[3]	☐Other modifications	☐Other

None expected.

How to respond

Standard Workgroup consultation questions

1. Do you believe that the Original Proposal and/or any potential alternatives better facilitate the Applicable Objectives?
2. Do you support the proposed implementation approach?
3. Do you have any other comments?

[3] If the modification has an impact on Article 18 T&Cs, it will need to follow the process set out in Article 18 of the Electricity Balancing Regulation (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.

4. Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?

Specific Workgroup consultation questions

5. The Original proposal is to limit the maximum variance by £2.50/kW per charging zone. Do you feel this is an appropriate level?
6. The Original proposal deems a 10-year period to fix tariffs between the pre-defined Cap and Collar ranges appropriate. Is there an alternative length of time that would need to be considered?
7. The Proposer has provided a mechanism by which components that feed into the wider tariff is allocated. The proposal apportions the Cap and Collar by the proportion of revenue collected for each component. Is there an alternative methodology that could be used?
8. Should there be a provision to trigger a re-opener in tariffs to reflect the considerable amount of reform planned both through Open Governance and via the TNUoS Task Force?
9. The Original proposal aims to protect Generators from un-predictable tariffs as the rational is that inefficient costs could ultimately cost consumers more. A breach to the Cap and Collar is socialised to Demand Users. Do you think this is appropriate?
10. Please provide any evidence to support the merit of greater predictability over cost reflectivity (Clearly mark your response confidential if you wish this to be directed straight to Ofgem).

The Workgroup is seeking the views of CUSC Users and other interested parties in relation to the issues noted in this document and specifically in response to the questions above.
Please send your response to cusc.team@nationalgrideso.com using the response pro-forma which can be found on the CMP413 modification page.
In accordance with Governance Rules if you wish to raise a Workgroup Consultation Alternative Request, please fill in the form which you can find at the above link.

If you wish to submit a confidential response, mark the relevant box on your consultation proforma. Confidential responses will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the Panel, Workgroup or the industry and may therefore not influence the debate to the same extent as a non-confidential response.

Acronyms, key terms and reference material

Acronym / key term	Meaning
ASTI	Accelerated Strategic Transmission Investment
BSC	Balancing and Settlement Code
CfD	Contract for Difference
CMP	CUSC Modification Proposal
CSNP	Centralised Strategic Network Plan
CUSC	Connection and Use of System Code
DCLF	DC Load Flow model
EBR	Electricity Balancing Guideline

ESO	Electricity System Operator
HND	Holistic Network Design
HVDC	High Voltage Direct Current
SME	Subject Matter Expert
ONTR	Onshore Transmission Network Review
STC	System Operator Transmission Owner Code
SQSS	Security and Quality of Supply Standards
TCMF	Transmission Charging Methodologies Forum
TNUoS	Transmission Network Use of System
ToR	Terms of Reference
T&Cs	Terms and Conditions

Reference material

- See footnotes

Annexes

Annex	Information
Annex 1	Proposal form
Annex 2	Terms of Reference Version 2
Annex 3	Terms of Reference Changes
Annex 4	Proposers' solution and considerations Workgroup 1
Annex 5	SME TNUoS 10-Year Tariff Forecast/HND Methodology options
Annex 6	Confirmation of the flow direction on HND HDVC Circuit
Annex 7	Cap and Collar mechanism – Tariff methodology
Annex 8	10-year forecast example tool
Annex 9	Workgroup member 1 version of the Tariff methodology
Annex 10	Workgroup member 1 version of the Tariff methodology
Annex 11	Demand Impact
Annex 12	Generator Impact
Annex 13	Limiting Regulation and CMP413 Examples
Annex 14	Weightings of cap within locational elements