ESO

Draft Final Modification Report

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**
   15 February 2024
4. **Code Administrator Consultation**
   26 February 2024 - 18 March 2024
5. **Draft Final Modification Report**
   18 April 2024
6. **Final Modification Report**
   08 May 2024
7. **Implementation**
   01 April 2025

Have 15 minutes? Read our Executive summary

Have 90 minutes? Read the full Draft Final Modification Report

Have 180 minutes? Read the full Draft Final Modification Report and Annexes.

Status summary: The Draft Final Modification Report has been prepared for the recommendation vote at Panel.

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

Governance route	A Standard Governance modification has been assessed by a Workgroup	
Who can I talk to about the change?	**Proposer:** Hugh Boyle Hugh.Boyle@edfenergy.com Phone: 02089352828	**Code Administrator Chair**: Claire Goult Claire.goult@nationalgrideso.com Phone: 07938737807

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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 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 breach 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 2025

Summary of alternative solution and implementation date:
WACM1 is seeking to recover the resulting excess/shortfall of revenue from capped/collared generator tariffs from a non-locational adjustment to generation tariffs as opposed to recovery through demand tariffs as in the Original proposal. Implementation date 1 April 2025.

Workgroup conclusions: The Workgroup concluded by majority that the Baseline better facilitated the Applicable Objectives than the Original and WACM1. Of nine votes, two voters said the Original and WACM1 better facilitated the applicable Objectives than the Baseline.

Panel recommendation: Panel will meet on 26 April 2024 to carry out their recommendation vote.

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

Several potential interactions may take place with CMP413. These are elaborated on in the 'Workgroup Considerations' section later in the consultation. Broadly, there are

several modifications in-flight which may impact the tariffs that are fixed under CMP413, if they are implemented in-advance of or alongside CMP413. These include CMP315/CMP375, which is proposing to reform the Expansion Constant calculation; CMP423, which would change the Reference Node and CMP419 which is considering Generation Re-Zoning.

The intention of the Original CMP413 proposal is that once TNUoS tariffs are fixed they are not re-opened unless a subsequent CUSC modification is approved which specifically mandates this. Otherwise, any changes to the Generation TNUoS charging methodology would be implemented in 10 years' time, once the next set of TNUoS tariffs is produced (i.e., if a CUSC modification is approved in 2025/26 which impacts the Generation TNUoS calculation methodology then this will only be reflected in the Generation tariffs published in January 2026 for charging year 2035/36).

In the event the CMP413 Original or WACM1 were approved prior to CMP419 then implementation of CMP419 would be effectively postponed until the end of the 10 year tariff fix period published at the time, as CMP419 only impacts Generators. Similarly, if CMP315/CMP375or CMP423 were approved with an implementation date after CMP413 then implementation of these would be partially postponed also (these modifications impact both Generators and Demand customers, only the aspects impacting Generators would be postponed, with the impact on Demand customers being implemented as per the relevant modification's intention).

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 could be produced following a review of the HND process and this 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. 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. A Five-Year Projection of TNUoS Tariffs for 2029/30 to 2033/34 was published in September 2023.

[1] ESO publishes a forward looking 5-year forecast which does not fully reflect the reinforcements projected.

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 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 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".

The most recent update from the TNUoS Task Force was the Headline Report from 25 January 2024, which discussed some areas loosely related to CMP413 such as the volatility of model inputs as well as reform to aspects of Demand TNUoS charges such as the Triad mechanism. Following earlier Taskforce meetings in late 2023 several modifications have been raised, some of which have potential to interact with CMP413 (as detailed earlier).

[2] https://www.nationalgrideso.com/future-energy/future-energy-scenarios

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 £/kW range for any given year will be split between the Peak, Year-Round Shared and Year-Round Not Shared tariffs in proportion to the total locational revenue recovered from each of these sub-tariffs. This is designed so as not to discriminate against any particular generation type or location. For instance, intermittent generators do not pay the Peak Security tariff and so would not benefit as much from the cap/collar mechanism if it was only applied to Year-Round security tariffs.

The following (non-indexed) bands are proposed:

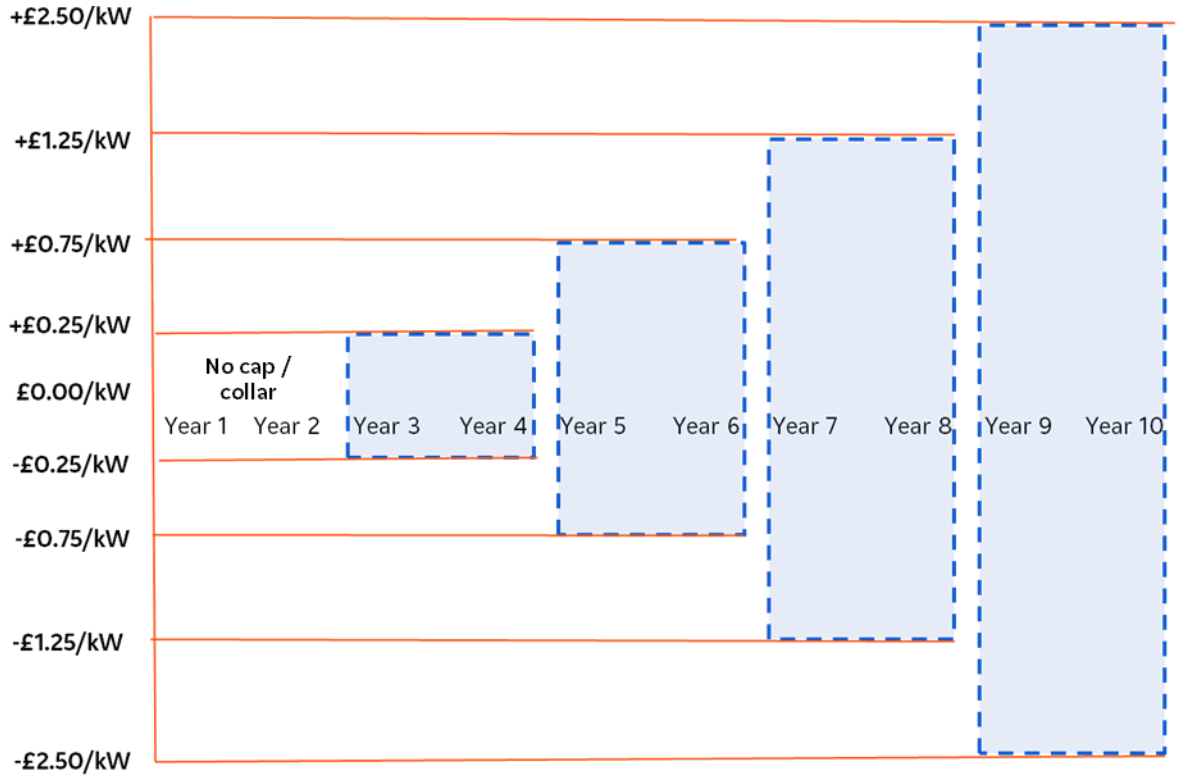
Limit for the Initial (baseline) Forecast (published prior to 1st April 2024)	**Cap / Collar range**
Charging Year 1 (2024/25) and Charging Year 2 (2025/26)	No cap/collar
Charging Year 3 (2026/27) and Charging Year 4 (2027/28)	+/-£0.25/kW
Charging Year 5 (2028/29) and Charging Year 6 (2029/30)	+/-£0.75/kW
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 (2025/26)	No cap/collar
Charging Year 2 (2026/27)	+/-£0.25/kW
Charging Year 3 (2027/28) and Charging Year 4 (2028/29)	+/-£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

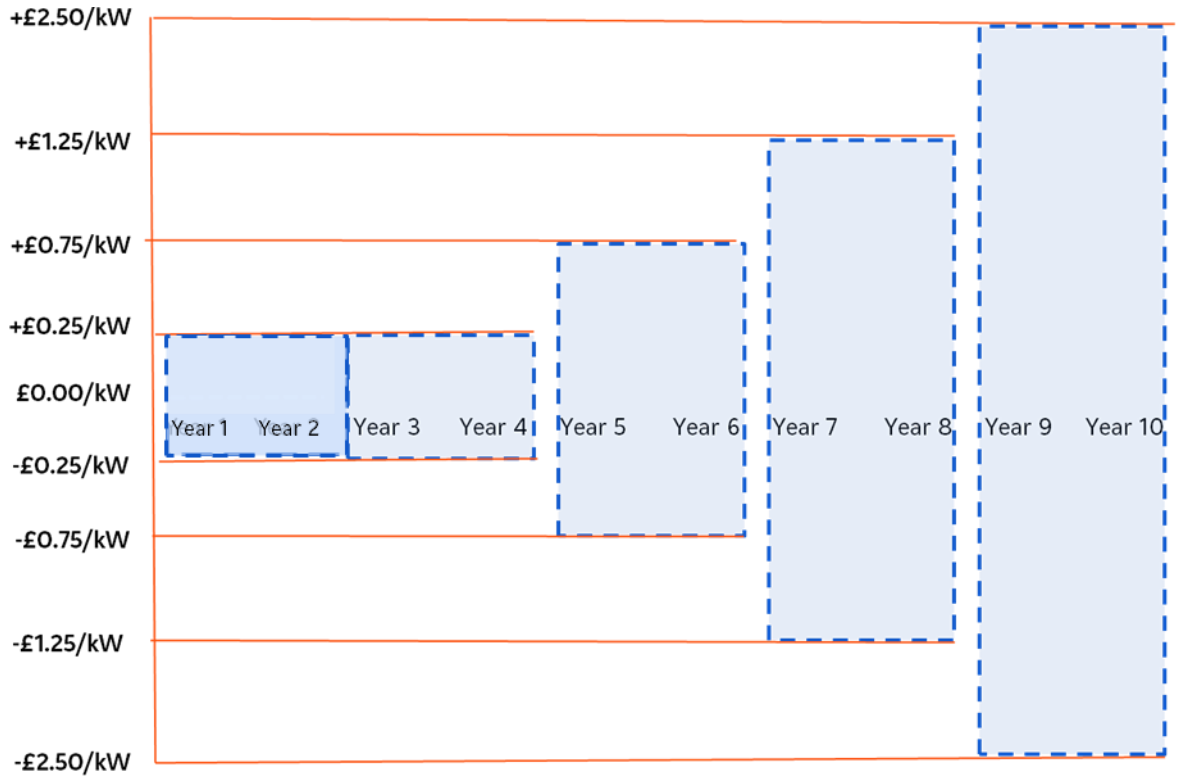
Third Forecast (published prior to 1st April 2026 and adhering to relevant cap/collars)	**Cap / Collar range**
Charging Year 1 (2026/27) and Charging Year 2 (2027/28)	+/-£0.25/kW
Charging Year 3 (2028/29) and Charging Year 4 (2029/30)	+/-£0.25/kW
Charging Year 5 (2030/31) and Charging Year 6 (2031/32)	+/-£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:

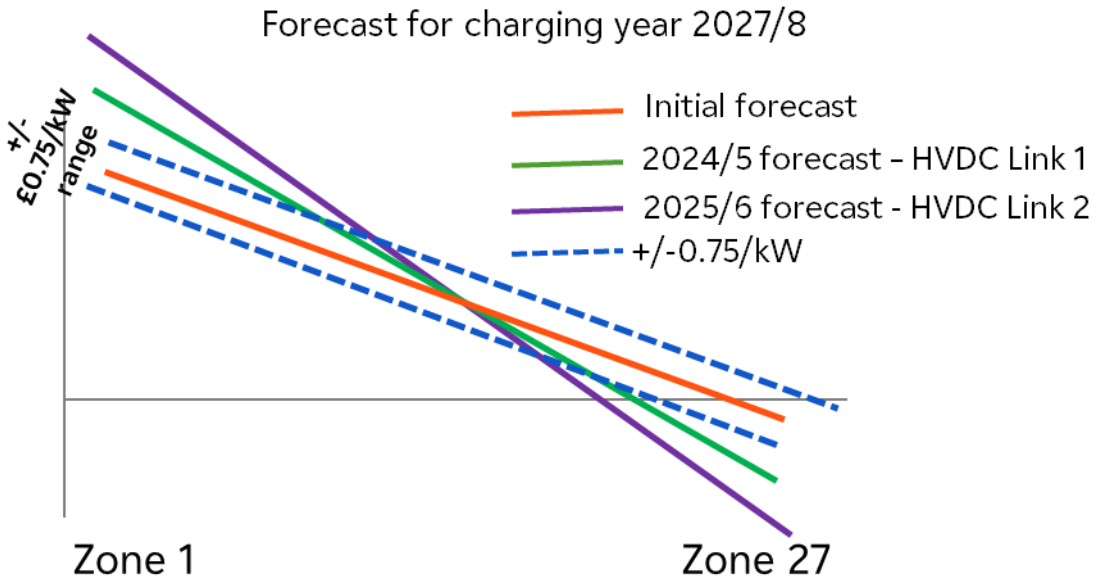
We have used a realistic but extreme change to the permutations that the ESO could have modelled for the construction of two new significant transmission links (in this case two Eastern High Voltage Direct Current (HVDC) cables expected later this decade), i.e., timing changes that could have varied from the first tariff forecast it produced. In the case study we assume that the ESO publishes an initial forecast in 2022/23 for the 2027/28 charging year. This assumes that the new HVDC cables connect in 2028/29 and are not included in the tariff. In subsequent years, 2023/24 and 2024/25 it creates two further forecasts for the 2027/28 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. This is conditional on the capped amount recovered from Generators being compliant with the 'Limiting Regulation'. Once the cap/collar has been applied, a check will be applied to the sum of the capped Locational revenue, Adjustment revenue and any other relevant revenues (i.e., from local circuits, local substations) to ensure this is still within the 'Limiting Regulation' range (€0-€2.5/MWh).

If this total is still within the 'Limiting Regulation' range, then no further updates to the tariffs are required. However, if the total falls outside the 'Limiting Regulation' range then the Generation Adjustment tariff will be revised to bring the total back within the 'Limiting Regulation' range.

In the above example, the cap/collar is applied so a total of +/- £0.75/kW locational tariff movement is permitted across the Peak, Year-Round Shared and Year-Round Not Shared tariffs. The split is proportional to the revenue recovered from each background, so c. 25% of the cap/collar is applied to the Peak and Year-Round Not Shared tariffs, with c. 50% applied to the Year-Round Shared tariffs, reflecting this split. In other words, the Peak and Year-Round Not Shared tariffs can move by c. +/- £0.19/kW and the Year-Round Shared tariff can move by c. +/- £0.38/kW (see the spreadsheet example included in **Annex 11** for more detail).

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 2023/24 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 2024/25 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: For each generation charging zone, if the tariffs replaced by a subsequent forecast are within the Cap and Collar range, then the tariffs for that generation charging are adjusted.

Step 5: For each generation charging zone, if the subsequent tariffs exceed +/-cap/collar, then the generation tariff for that charging zone 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.

Step 7: If the revenue recovered from the adjusted Generation tariffs is still within the 'Limiting Regulation' range then no further updates to the tariffs are required. However, if the revenue recovered from the adjusted Generation tariffs falls outside the 'Limiting Regulation' range then the Generation Adjustment tariff will be revised to bring the total back within the 'Limiting Regulation' range.

This modification seeks to recover, from Demand Users, the revenue that is derived breaching the cap/collar. In **Annex 10** (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.

The proposal does not include a re-opener mechanism however it is recognised that The Authority has the power to approve subsequent modifications that effectively alter any tariffs and/or ranges set by CMP413.

Additional Illustrative Examples:

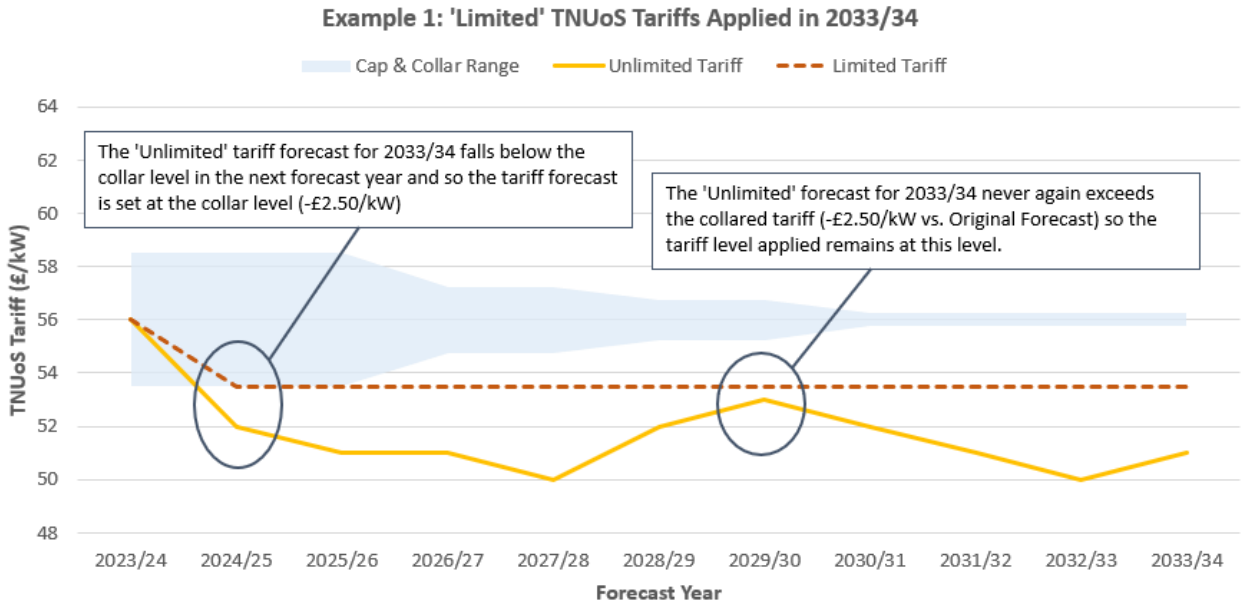
The principle behind the modification is to give generators more certainty, by ensuring that the TNUoS tariffs that they are charged are close to the level forecast 10 years in advance.

Shown in the charts below (based on the modelling provided in **Annex 7**) are simplified examples of how the modification would work in practice. In these examples the Original Forecast (10 years ahead) for TNUoS tariffs is £56/kW. Further ahead of delivery there is a higher tolerance for TNUoS tariffs to move (+/- £2.5/kW), as time goes on this cap and collar range narrows (blue range in charts below) as the inputs underpinning the tariff calculation become more certain. Closer to delivery you would expect smaller tariff movements and the cap and collar range progressively reduces to +/- £0.25/kW.

It is important to note that the TNUoS tariff applied to generators ('Limited Tariff' in the charts below) does not necessarily converge on the Original Forecast. The 'Limited Tariff' cannot vary from the Original Tariff by more than +/- £2.5/kW but may remain outside the indicated cap and collar range for a given forecast year depending on the history of 'Unlimited Tariff' movements up to that point.

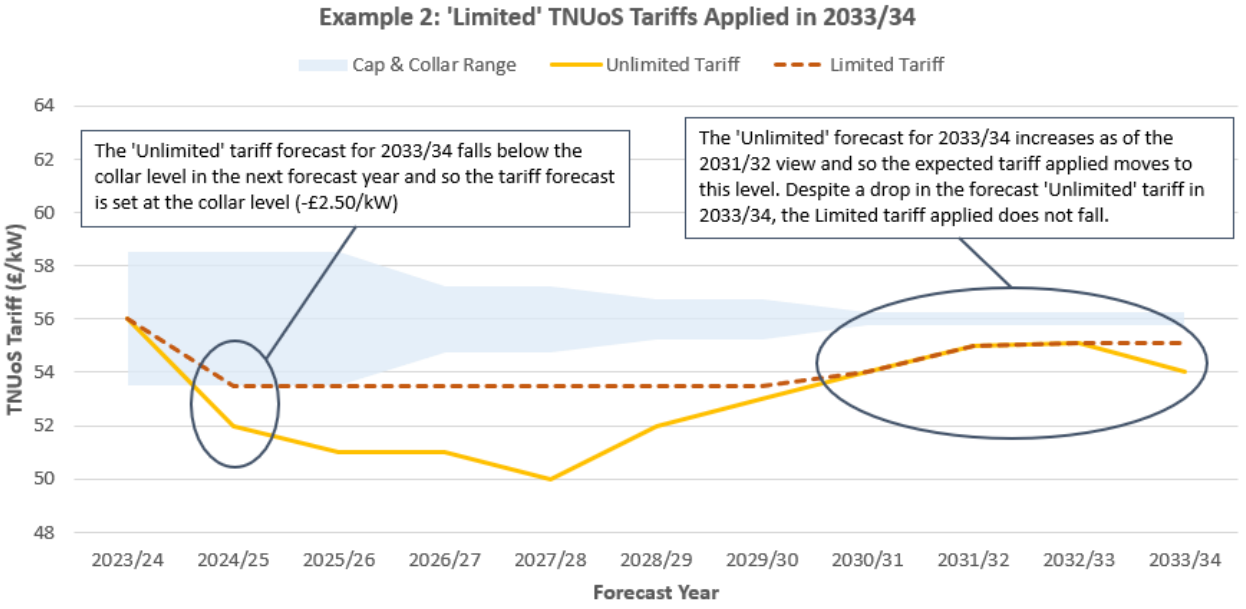
This is shown in Example 1 below where the 'Unlimited Tariff' to be applied in 2033/34 drops from £56/kW to £52/kW as of the 2024/25 view. This is below the collar level, so

the ‘Limited Tariff’ is instead ‘collared’ at £53.5/kW (or -£2.5/kW compared to the Original Forecast).



In all future forecast years, the expected ‘Unlimited Tariff’ for 2033/34 remains below the ‘collared’ £53.5/kW or ‘Limited Tariff’ level. Therefore the £53.5/kW tariff remains in place and will be applied to generators in 2033/34.

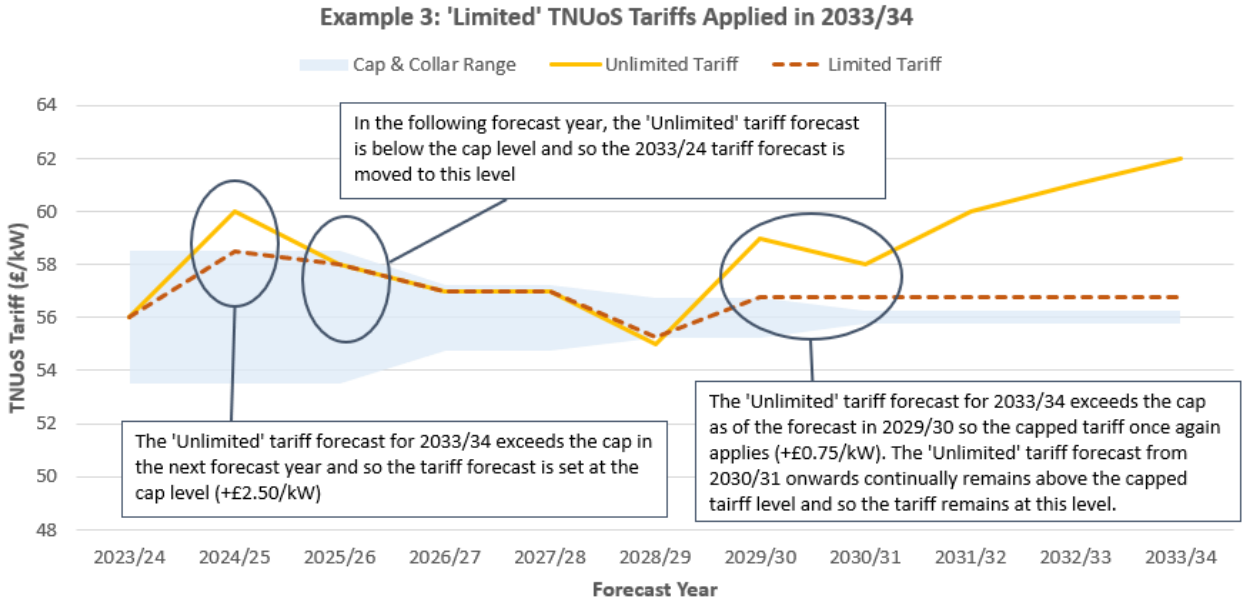
In Example 2 below, after a similar start the ‘Limited Tariff’ for 2033/34 drops to £53.5/kW as of the 2024/25 view (-£2.5/kW compared to the Original Forecast).



However, the ‘Unlimited Tariff’ forecast for 2033/34 as of the view in 2031/32 increases to £55/kW. Therefore the ‘Limited Tariff’ also increases to this level, bringing it closer to the Original Forecast.

Lastly, in the final forecast year, the ‘Unlimited Tariff’ for 2033/34 falls from £55/kW to £54/kW. However, the ‘Limited Tariff’ remains at £55/kW as this tariff level cannot deviate away from the Original Forecast level if this is outside the relevant cap and collar range. The £55/kW effectively becomes a new minimum tariff level. ‘Limited Tariffs’ applied to generators can only remain static or move closer to the Original Forecast, until/unless the ‘Unlimited Tariff’ moves back within the relevant cap and collar range.

Lastly, in Example 3 below, the ‘Unlimited Tariff’ forecast for 2033/34 as of the view in 2024/25 increases to £60/kW and so the ‘Limited Tariff’ is ‘capped’ at £58.5/kW (or +£2.5/kW). However as of the view in 2025/26, the ‘Unlimited Tariff’ decreases to £58/kW. This is within the relevant cap and collar range and so the ‘Limited Tariff’ also moves to this level.



The ’Unlimited Tariff’ forecast for 2033/34 then remains within the cap and collar range until the view as of 2028/29 when it falls below the relevant ‘collar’ level. Therefore the ‘Limited Tariff’ is set at the collar level (-£0.75/kW compared to the Original Forecast).

Finally, as of the view in 2029/30, the ‘Unlimited Tariff’ increases to £59/kW. This is outside the cap and collar range, so the ‘Limited Tariff’ is set at the relevant cap range at the time (+£0.75/kW).

The ‘Unlimited Tariff’ forecast for 2033/34 continues to increase in the final few forecast years, but this would take the ‘Limited Tariff’ outside the cap and collar range, so the tariff level remains unchanged.

As a general principle of this modification methodology, ‘Limited Tariffs’ cannot deviate further away from the Original Forecast unless this is within the relevant cap and collar range for that forecast year, which narrows the closer you get to delivery. However, ‘Limited Tariffs’ can stay static or move closer to the Original Forecast.

Workgroup considerations

The Workgroup convened 14 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 Objectives.

The Workgroup held their Workgroup Consultation between 11 September 2023 – 2 October 2023 and received 13 non-confidential responses and 0 confidential responses. The full responses and summary table can be found in **Annex 14**.

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 that the Original solution weighed up the conclusions of these engagements to find an appropriate balance of predictability and cost reflectivity. It was important to note that Generators continued to face some risk and therefore the proposal reflected this.

Workgroup members discussed the Proposer's solution (**Annex 3**). 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.

The Proposer presented the Cap and Collar mechanism for the tariff methodology (**Annex 6**) with the Workgroup describing it as a crucial component in this modification. However, when trying to demonstrate this visually through excel spreadsheets, 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. For that reason, the first three Workgroup meetings concentrated on achieving some consensus of the detailed mechanisms. One Workgroup member suggested creating a spreadsheet which would allow members to input their own numbers to see how the methodology would work in practice.

In response to the Workgroup member's request, the Proposer developed a spreadsheet, (**Annex 7)**. 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 higher/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. 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 consultation (page 9).

The ESO Representative highlighted that the Original solution relies on the ability of the ESO to produce a 10-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 was had regarding potential application of 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. The Proposer also acknowledged recent TNUoS Task Force progress and modifications now feeding into the Open Governance process addressing some of the defects in the existing charging methodology would also have an impact on CMP413.

In several Workgroup consultation responses there were calls for underlying improvements that are needed to the TNUoS methodology to be addressed ahead of fixing them within a ranged Cap and Collar. The Proposer accepted this is a desirable outcome and hope that these modifications are expedited to improve the signals which can then form a more robust set of tariffs under CMP413 that developers can use to base their investment decisions on.

Live Modifications/ 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 (CMP423)	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 changes, 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, 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 assessment 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 4**)

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, the ESO agreed to publish a 10-year projection. In September 2023 the ESO published the Five-Year Projection of TNUoS Tariffs for 2029/30 to 2033/34.

In Workgroup discussions the ESO clearly explained that the production of a non-binding set of tariff scenarios is different from a binding forecast. It was explained to Workgroup members many of the obstacles to produce a projection are assumptions that need to be factored into deriving tariffs, but the ESO Representative agreed with a set of assumptions, it was possible a set of tariffs for a period of 10-years could be produced.

The ESO Subject Matter Expert (SME) 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. Detailed diagrams were shared with members to explain each option (**Annex 4 and 5**). It was explained, by the SME, 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 SME confirmed the predominant flow direction on the HND HDVC circuit was North to South and informed the Workgroup this information was taken from Ofgem's decision

on Onshore Transmission Network Review (OTNR) asset categorisation. As part of this presentation the SME shared a revised diagram for Option 1 (**Annex 5**) explaining it was initially thought that the Lincolnshire connection node was not yet energised. However, the most recent HND report and Ofgem's Accelerated Strategic Transmission Investment (ASTI) decision, confirmed that Lincolnshire-Humber double circuits have been 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 by stakeholders. Most Workgroup members agreed that this was also their preferred option.

The ESO Representative noted that the Workgroup has no governance on how a binding 10-year forecast is produced and clarified this is determined by the ESO and the rules under the CUSC. Workgroup members agreed they were not proposing to define the process used to create the 10-year forecast but have provided some possible options for the ESO to consider (**Annex 13**).

Representations of the Proposer's original 10-year forecast example tools (**Annex 8 & 9**)

One Workgroup member presented their variation of how the Cap and Collar methodology could be interpreted (**Annex 8**), 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.

Another Workgroup member presented another variation of the tariff methodology (**Annex 9**) stating that the differences in this method are highlighted in red on the principles section of the spreadsheet. The member explained that the additional red and blue line were to show a forecast when a tolerance is set for each year.

A Workgroup member requested clarification on the purpose of these alternative examples. It was confirmed that they were an interpretation of the Proposer's modification and to demonstrate how the first part of capping would work. 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.

A question was raised regarding why the capping on the graphs were shown in £/kW and not percentage. The Workgroup 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 use of this measurement.

A Workgroup member was concerned that the examples shared were doing very different things to those shown on the Original proposal. The crux of this was that there were two parameters that needed to be satisfied but the Original tended to concentrate on the Cap and Collar banding when it fanned in from £2.50/kW to £0.25/kW.

Workgroup members broadly accepted that each alternative example achieved a similar result to the intention of the modification defect albeit using different approaches. The

Proposer was agnostic to each of the variations presented although their original forecast, now clarified, may achieve a simpler legal text and therefore be marginally preferable.

Workgroup members debated components of the existing Annual published tariffs that use the concept of "best view". This is the term used when modelling Transmission Entry Capacity (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 11, 'assumption' tab**). This demonstrated how each of the 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. The Proposer was certainly agnostic to any reasonable and practicable solution identified. The Workgroup concluded that the manner in which a forecast is derived is a matter for the ESO.

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 Workgroup 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.
Cost reflectivity and predictability trade-offs could be broadly categorised into two areas:	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

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. **2. Structural related reforms** Changes to the structure of tariff collection (i.e., CMP419 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)		widely. The Proposer responded saying timing of implementation of a 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. 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.
The Proposer demonstrated through their worked example spreadsheet (**Annex 7 and Annex 12**) 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 10 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 breaches	**Annex 11** was created to model the impact of recovery of any breach to the Cap/Collar on Generators only.

	the pre-defined cap/collar range).	
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 raised in future and so this was hard to assess.	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 is to be progressed as interdependencies on proposed or current live modifications is not within the control of this Workgroup or modification
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 regarding this 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 Workgroup 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 10**
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	h) Consider interactions with wider potential TNUoS developments e.g., TNUoS Task Force 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

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)		being protected through 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 Workgroup consultation preparation (September 2023) there were no structural proposals currently awaiting determination by the Authority. CMP419 identifies a defect where a change to the number of generation charging zones may be a solution. The Workgroup identified questions to ask in the consultation to draw out any suggestions around this area.

Workgroup consultation summary

The Workgroup held their Workgroup Consultation between 11 September 2023 and 2 October 2023 and received 13 non-confidential and 0 confidential responses.

Nine respondents did not support the implementation approach and three of these described the implementation date of 1 April 2024 as not achievable, not feasible and challenging.

All responses to the consultation along with the summary can be found in **Annex 14**.

Workgroup Consultation Responses Review

Responses to the five Workgroup specific consultation questions were discussed in detail with Workgroup members:

Four respondents agreed it is appropriate to limit the maximum variance by £2.50/kW per charging zone. One Workgroup member observed that the 10-year projection came out towards the end of the consultation period and not all respondents may have had time to digest it before responding to the consultation.

Another Workgroup member requested the Proposer share further understanding on how they got to £2.50/kW to contextualise comments made in the consultation describing the number as arbitrary. Ofgem's Representative advised the Workgroup that anything that is a number being hard coded into the process requires a truly clear justification. The

Authority is not able to approve anything that is arbitrary or where the rationale is unclear especially where there are implications for consumer bills.

The Chair questioned if the analysis the Proposer had previously shared with developers could be shared with the Workgroup. The Proposer advised they would share non-confidential analysis with Workgroup members and share the confidential part with the Authority. Ofgem's Representative reiterated to the Workgroup that any confidential submissions can be made to them directly.

A Workgroup member referenced the tolerance range and described how it would be different in fifteen years' time also pointing out it will be narrower if not adjusted to take into consideration the Consumer Price Index (CPI). Another point made referenced the tolerance being set on the year minus 10 like the original forecast for 10 years in the future. Rather than being a narrowing cone of tolerance on successive years (minus 9, minus 8) as it gets closer to the charging year in question it is a quite different outcome.

Eight respondents to the consultation agreed 10 years was an appropriate length of time to fix tariffs between the pre-defined Cap and Collar ranges. One Workgroup member expressed concern regarding the accuracy of a 10-year projection stating how the ESO are the authority of how strong it is and that the ESO Representative has already stated it comes with many caveats. The member went on to say, if industry/developers do not believe that the Cap and Collar will hold, or there is a possibility a future modification might change it, or the forecast is inaccurate then they will not have the confidence to base their investment on it anyway. It is as much about whether the industry will have faith in the accuracy than the accuracy of the forecast itself.

The ESO Representative raised a similar point to the previous member and clarified that it is a projection not a forecast on tariffs and confirmed there are a lot of uncertainties as it is a very new process. This is something that needs to be considered alongside the question around whether 10 year is an appropriate period for investment costs. Workgroup members must also consider how it links to data the ESO must base the projection off, as well as looking at the process going forward.

Ofgem's Representative reiterated the points made by the ESO Representative and went on to say it had been made noticeably clear that it was a projection and not a forecast. There are material gaps in the data set that precluded it from being a 10-year forecast and it had been made clear that this was a one-off exercise. The Ofgem Representative advised there is a question in relation to the modification now as it is reliant on a 10-year forecast and whether the ESO can perform a 10-year forecast. It has taken six to seven months to do a 10-year projection and the ESO are at present unable to do a 10-year forecast with any certainty which is an issue for this modification.

A Workgroup member asked if it is an implementation issue for the ESO or is it too hard to accomplish a 10-year forecast. The ESO Representative advised they will pull together something to highlight the difference between a forecast and a projection to give a clearer understanding to the Workgroup (page 26 and 27).

Four respondents agreed with the methodology to apportion the Cap and Collar by the proportion of revenue collected for each component. A Workgroup member suggested that the methodology needs to be explained further and believed anyone outside this Workgroup would struggle to understand it. They felt that the solution was valid but also

extremely complicated and the Workgroup needed to be clear what the criteria is for judging the most suitable methodology.

Four respondents agreed there should be a provision to trigger a re-opener in tariffs to reflect the considerable amount of reform planned through Open Governance and via the TNUoS Task Force. A Workgroup member stated that there is no point saying there cannot be a re-opener as a subsequent CUSC modification could rewrite the methodology anyway.

ESO's Representative advised they struggled with this question. They did not find either situation desirable, adding they did not want to see a 10-year lag before an important change is implemented but also another modification coming in and overriding tariffs that have previously been locked in brings no benefit. A Workgroup member suggested something should be included in the proposal to say there may be circumstances under the Authority's direction that these tariffs can be re-opened or adjusted, making it clearer in CUSC.

Eight respondents agreed a breach to the Cap and Collar is socialised to Demand Users.

Seven respondents commented on the merit of greater predictability over cost reflectivity. There were some points raised in the consultation around the timing of the modification. A Workgroup member said that although they thought the timing was not great the modification had been raised and should be addressed accordingly.

Other options/Alternatives

Three suggestions and three Alternative requests were raised during the Workgroup phase (**Annex 15**).

<u>Suggestions – ITP Energised</u>

Three alternative suggestions were made by a non CUSC party member. Although unable to raise them as official Alternative requests, a request was made for Workgroup members to consider the 3 possibilities depending on the scope of the proposal:

1. Publish final generation TNUoS tariffs 2 years and 60 days in advance of the start of a tariff year. This will give a rolling 3 years of tariff certainty rather than the current 1 year. (i.e.: reduce proposal from 10 years to 3 years and remove Cap and Collar regime)
2. TNUoS tariffs for a generator will be set based on an average of the latest ICRP DCLF output, and the outputs from the two years prior. To clarify, average the zonal cost per kmMW from the transport side of the TNUoS model over three years but apply the tariff side of the model as normal.
3. Inputs to TNUoS ICRP DCLF model based on one of the published Future Energy Scenario (FES) or similar. This would be in terms of demand, generation and NOA infrastructure dates &/or TWR. These model inputs would be set 3 years in advance, providing less scope for tariffs to change over this time horizon and greater predictability beyond. This would provide tariffs based on strategy, allowing strategy (rather than the current as-is network) to become the driver for locating new generation and supporting future infrastructure build.

One Workgroup member suggested that the Proposer of an Alternative Request might consider incorporating the points made in the suggestion. One Workgroup member felt that point three was out of scope for this modification and other members advised that these suggestions, although interesting, were addressing a separate set of problems.

Alternative Request 1 – Centrica – Aligns with Original but shortfall sits with the generator and not the supplier.

The Centrica Representative outlined details of their Alternative request. It was noted that this Alternative aligns with the Original, the difference being that the shortfall sits with the generator and not the supplier. This Alternative seeks to recover the cross subsidy resulting from any excess/shortfall of revenue from capped generator tariffs from a non-locational adjustment to generation tariffs as opposed to recovery through demand tariffs in the Original proposal.

Alternative Request 2 – RWE - Fixing wider generation tariffs on a project-by-project basis.

The second Alternative request raised by RWE was also outlined by the Proposer who advised the Workgroup that they Alternative Request Form was still being updated and would be shared once completed. The request seeks to offer generators an option to fix their TNUoS against a profiled forecast from the ESO and the length of the fix would ultimately be subject to the longest period the ESO felt able to reliably forecast. However, it was proposed an aspirational forecast for a period of 15-20 years to align with CM and CfD periods, plus time to commissioning. The Proposer noted that this aspirational longer period introduces additional risk in the forecast, however it is felt the optional nature of this Alternative, rather than being blanket-applied to all generators irrespective of their place in the investment cycle, reduces the financial impact of “getting the forecast wrong”.

Alternative Request 3 – ESO – Obligation to re-produce a 10-Year projection annually.

This Alternative proposes an obligation under the CUSC for ESO to re-produce a 10-year projection of future tariffs on an annual basis. It is proposed the methodology is to be improved iteratively, with transparent assumptions shared with Industry. It differs from the Original on the basis that there is no tariff fixing.

ESO’s Proposer shared details of the Alternative request and advised the Workgroup that ESO are yet to be convinced that fixing for such a long period of time is the right thing to do. This alternative takes the current obligation in CUSC to provide a 5-year indication of future tariffs and update it to be 10 years. One Workgroup member responded to say they appreciated the goodwill from the ESO and although it goes some way to helping the defect, it does not solve it completely. The member explained part of the problem is that the 10-year projection would be heavily caveated making it unreliable and therefore could not see how this Alternative request would improve reliability. The member also noted ESO could do this without being obligated to it and was not sure if this request became a WACM if it would be meaningful in terms of addressing the defect. Another member agreed that there is a need for it and added, it might be an idea for the other WACM’s and the Original to use this as part of their proposals.
The ESO SME pointed out to the Workgroup that one example in relation to the caveats on the 10-year projection was not having revenue numbers out 10 years which was a key input to the process, this made it very difficult to come up with sensible numbers in terms of tariffs that need to be set each year. The starting point is how much revenue recovery

is required to cover costs of the network. The SME pointed out that this is very challenging for TO's to come up with numbers going out 10 years.

The ESO Representative clarified the reason for codifying the 10-year projection would be to have subsequent changes to the STC ensuring revenue numbers could be acquired for the relevant period required, otherwise it will be heavily caveated.

A Workgroup member questioned whether the ESO could extend the projection to 15 years or further, ESO responded to say the members question was quite an open one. Elements being used at present can be scaled up to further years out but how accurate is this, it all depends on the level of data you have.

Alternative Vote

Workgroup members participated in the Alternative Vote and concluded by majority Alternative Request 1 and 2 become Workgroup Alternative CUSC Modifications (WACM1 and WACM2).

Workgroup members voted on the Alternative Request 3 and agreed not to put the Alternative through as a WACM. Workgroup members agreed that although they did not think the request was suitable for a WACM they did think aspects should be included in the Original solution, WACM1 and WACM2.

WACM1 Review

The ESO Representative noted that the Original Proposer has shared worked examples for their solution and questioned if the Alternative Proposer could do the same. The Original Proposer highlighted that details in **Annex 11** could be used in this instance to assist the Proposer of WACM1.

The Proposer of WACM1 advised the Workgroup that the 2 scenarios within **Annex 11** had been used for their examples **Annex 16** and pointed out that the Locational tariffs in WACM1 are the same as in the Original proposal to avoid any unnecessary complexity. The Proposer of WACM1 talked through each scenario explaining how they worked.

WACM2 Review

The Proposer of WACM2 shared a detailed presentation (**Annex 17**) with the Workgroup highlighting there were a number of points they would like Workgroup members to consider:

- Other forms of generation make regular investments and therefore it might be more cost efficient to offer a fix to all generation, rather than only newbuild.
- Fixes should/could also be for a shorter length, below the proposed 15 years.
- Alternative to a FID trigger, new developers can take the option to fix against the latest forecast, and then "join the curve" when they connect.
- Role of inflation – should the fix adjust for inflation?
- Should generators with a fix continue to face these charges irrespective of if the station closes?

- Rather than placing the maximum length of the fix on the face of the WACM, should it be tied to the maximum that ESO can deliver (with a 15 year+ aspiration)?

The WACM2 Proposer shared an updated presentation to reflect the views of members following the discussion and shared further points for Workgroup members to consider, such as requiring ongoing liability for TNUoS, even in the event of a site closing (this was rejected) and how changes to site might be addressed (**Annex 18**).

WACM2 Withdrawal Consideration

An update was shared with the Workgroup by a member who is also part of the TNUoS Task Force group. It was explained to the Workgroup that during the meeting held on 10 January 2024, Task Force members discussed WACM2 raised by RWE in relation to CMP413. A question was raised whether it should be a Proposal in its own right or remain as a WACM. The following discussion points were highlighted;

- When fixing a forecast ahead of time Task Force members were determined that it must be robust. It was agreed the forecast should be transparent and codified to illustrate how it would be compiled and formulated within the CUSC. The Workgroup also agreed consultations and peer reviews with industry, in relation to the forecast, would also be required.
- Points were raised around ESO's ability to provide a meaningful forecast for 15 years. Task Force members queried if this was a realistic expectation considering the Original CMP413 request was a 10-year forecast.
- Task Force members discussed how the contractual arrangements for the WACM would be different to the Original Proposal (i.e., fixing the cost rather than setting a band in which the price is set) and examined how the decision to keep WACM2 would disrupt the current CMP413 timeline.
- Consideration was also given as to whether a deep connection charge approach would allow the tariff to be protected in the future.

Workgroup members were advised no firm or unanimous recommendations had been made by the Task Force, and clarified there were no strong objections to WACM2 being raised as a modification in its own right. The following points were noted as possible scenarios;

- WACM2 to be raised as a separate modification.
- WACM2 and CMP413 Original could both be implemented in theory.
- If the WACM was to be raised as a modification in its own right, Taskforce will scope analysis which would be performed by Frontier as part of the signal's subgroup work.

A discussion took place regarding the ruling on whether a modification can be raised if it is addressing the same defect. A member advised that the ruling was "If something has substantially the same effect", it cannot be raised, and therefore this would not apply to WACM2.

Members were asked if they had any objection to WACM2 being withdrawn should Panel agree it can proceed as a modification, no objections were raised. The Chair confirmed, WACM2 would remain as part of CMP413 until clarification had been received.

Confirmation of WACM2 Withdrawal

CUSC Panel members discussed the prospect of WACM2 being withdrawn from CMP413 on Friday 26 January 2024 and raised as a separate modification. Panel members agreed WACM2 had a substantially different effect to the defect and therefore could proceed as a separate modification. The Proposer of WACM2 agreed to raise WACM2 as a new modification.

ESO Projection/Forecast

ESO's Representative had been asked to update the group highlighting the difference between a forecast and a projection. The Representative explained ESO have called the 10-year publication a 'Projection' to make it clear that there are some significant differences in the methodology and data used in comparison to the 5-year forecast. It was explained to members, the key data used for the 5-year publications is not available when looking further out, and other parts of the methodology would not work for the suggested 10/15-year timescales.

The ESO Representative outlined a number of uncertainties included in the data:

- Unavailability of some detailed network data
- Generation and demand background: scenarios instead of forecast
- New price control periods
- Energy policies
- New technologies and challenges
- Charging/Modelling methodology changes

The Proposer of the Original asked about defined and non-defined methodology, proposing if some of these things could be defined would that be sufficient to produce a forecast or are there still methodology differences. ESO's Representative responded to say if they were trying to make something more defined as a forecast it is potentially achievable, but it would be a big project. ESO would need to look at all the data inputs, including those from third parties and see what is available further out and how they could firm up some of those things. They were hesitant to say what scenarios are used for a forecast as the whole idea of FES is that it presents a creditable range of different scenarios, and it would be difficult to just pick one.

Another member wanted to point out to the group as a long serving member in the industry they remembered ESO advising that a 5-year forecast was too difficult, so nothing is impossible. Part of the essential reason for this mod is achieving net zero and to advise Ofgem and Government that this is hampering net zero would not be the right answer. The ESO Representative advised that they were not saying it is impossible, the point being made was the 10-year publication as a projection was a significant piece of work. To get it to a point where they are producing something they call a 10-year forecast would again be a very big piece of work.

A Workgroup member posed a question in relation to Price Control parameters and the rate of return being a factor when creating a forecast. The member asked why assumptions around TO Allowed Revenue and Price Control were required in order to set the forecast for the wider locational charge. The ESO Representative described how the main concern was around the financial parameters i.e., rate of return that are reviewed by Ofgem every five years. It was explained that these parameters go into the makeup of the wide locational charges in the forecast/ projection.

The ESO Representative shared a high level presentation on the ESO 10-Year Projection, informing members ESO revenue are currently very low on resource. ESO provided a 10-year projection of tariffs in September 2023 and have received positive feedback from Industry despite the limitations of the process. While predicting tariffs so far in advance will inevitably have lots of uncertainty, ESO believe that the process can be improved with additional resource and through iterative improvement. A fit for purpose forecast is a key element for the original solution and WACMs.

While a full plan to improve inputs to the model will be developed, possible target areas for improvement include:

- Reduction of Scenario based inputs - The 10-Year Projection relied on FES for inputs to the Generation & Demand Background. FES is intended as a scenario-based process and does not produce forecasts. Further exploration needed to identify work that can be done to produce forecasted inputs.
- DNO Data - Input data from DNOs is key to an accurate model. An STC modification is envisaged to obligate the provision of longer-term data from the DNOs.
- CSNP - Identify which data will feed in from this and frequency of update.
- Other - Further assessment of enhancements that can be made to process via in depth review with SMEs.

ESO would likely look to combine with existing processes for efficiency i.e., the 5-year forecast publication, and assess the most suitable time of year to fit around other publications.

Several Workgroup members indicated the forecast would have to be improved over time to reduce the risk of inaccurate forecasts impacting on cost reflectivity. It was confirmed by the ESO Representative, the forecast will be an evolutionary process. It was also suggested further assessment of enhancements could be made by engaging with SMEs to identify areas that can add value and combine with existing processes for efficiency (i.e., the 5-year forecast publication).

It was noted by the ESO Representative, the forecast produced for an implementation year of 2025 (therefore based off a forecast in 2024) would still retain many of the significant uncertainties that were present in the 10-year projection publication. It was explained there would be more inaccuracy in the first forecast, largely due to data inputs which are not currently available, and the lack of time for development. The ESO Rep confirmed the modification did not seek to codify any of the forecasting process due to the fact it will develop and change over time.

Examples were shared with members of recent STC modifications and how long there has been between raising and sending to Ofgem. This was due to a question from the Original Proposer who wanted to understand the timeline if an STC modification was

raised. The Original Proposer questioned if there was more flexibility in the STC modification timelines. The ESO Representative responded to say it would not be a case of needing the STC modification to be in place to progress with this modification. The STC modification would come at some point in time as part of the approach of improving the accuracy of the forecast. The Chair questioned if this would affect the implementation and the ESO Rep confirmed it would not.

A Workgroup member questioned if ESO were committing to a 10-year forecast and requested further clarification. It was confirmed that the forecast was to support either the Original modification or WACM1 that will rely on that forecast being produced on a regular basis. The ESO Representative added that a forecast could be produced on an ongoing basis outside of this modification and consideration is being given to what the benefits are and what value it will add.

A member noted they were appreciative ESO were continuing to look at the potential for a long-term forecast. They added that although the methodology made sense now, they would not want ESO to be constrained by the methodology and be unable to include new data which may become available in the future. The ESO Representative agreed with this point.

Legal text

Legal text for the Original and WACM1 can be found in **Annex 19**.

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** 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	**Positive** Networks charges would align with / be based on

licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection);	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 reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses;	**Positive** 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**

Workgroup vote

The Workgroup met on 6 February 2024 to carry out their Workgroup vote. The full Workgroup vote and statements can be found in **Annex 20**. The table below provides a summary of the Workgroup members view on the best option.

The Applicable CUSC (charging) Objectives are:

CUSC charging objectives

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) To promote efficiency in the implementation and administration of the system charging methodology

*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.

The Workgroup concluded by majority that the Baseline better facilitated the Applicable Objectives than the Original and WACM1. Of nine votes, two voters said the Original and WACM1 better facilitated the applicable Objectives than the Baseline.

Option	Number of voters that voted this option as better than the Baseline
Original	2
WACM1	2

Code Administrator Consultation Summary

The Code Administrator Consultation was issued on the 26 February 2024, closed on 18 March 2024, and received nine non-confidential responses, one late non-confidential response and one confidential response. A summary of the non-confidential responses can be found in the table below, and the full responses can be found in **Annex 21**.

Code Administrator Consultation summary	
Question	
Do you believe that the CMP413 Original Proposal or WACM1 better facilitates the Applicable CUSC Objectives?	Seven respondents stated the Baseline better facilitates the CUSC objectives than the Original and WACM1. Three respondents stated the Original Proposal and WACM1 better facilitates objective a. Two respondents stated the Original Proposal and WACM1 better facilitates objective c. One respondent stated the Original Proposal and WACM1 better facilitates objective b and e.
Do you support the proposed implementation approach?	One out of the ten respondents supported the proposed implementation approach.
Do you have any other comments?	Eight out of the ten respondents preferred option was the Baseline. Respondents supportive of the Original Proposal gave the following reasons: • Providing a centralised forecast will better facilitate competition and ensure a level playing field for all User's. • Providing a long-term central forecast of TNUoS tariffs will be more efficient for User's. • Protects generators from unpredictable tariffs.

	Respondents not supportive of the Original or WACM1 noted WACM1 was a slightly better solution and gave the following reasons: • Ensures charges are more cost reflective than the Original. • Collecting the additional revenue from generation reduces impact on demand customers. Respondents not supportive of the Original or WACM1 gave the following reasons: • Both solutions seek to insulate generators from changes in signals over time and transfer risk to consumers. • Benefits rely on the accuracy of a projection which currently has many flaws and caveats and therefore tariffs are likely to be less cost reflective. • Both solutions add complexity to the administration of the charging methodology which is not consistent with CUSC charging objective e). • The calculation is too complex causing difficulties for users to apply and therefore assist in investment analysis. • Enhancement to the current charging methodology must be prioritised before this proposal can be considered. • There will be a significant margin of error in the forecast considering the scale of change which can arise in a 10 year period and both solutions are not compatible with future changes such as Charging zones. • The implementation date of April 2025 seems impractical to deliver a model carrying substantial implications for network users and will result in a forecast with many data gaps. • Neither solution address how 'Year 1' would be set for each generator and consider there is a risk of gaming by new generators in terms of when they connect. • Both solutions could be amended by future modifications.
Legal text issues raised in the consultation	
No legal text issues were raised by the respondents.	

Panel Recommendation

The Panel will meet on the 26 April 2024 to carry out their recommendation vote. They will assess whether a change should be made to the CUSC by assessing the proposed change and any alternatives against the Applicable Objectives.

Vote 1: Does the Original facilitate the objectives better than the Baseline?

Panel Member: **Andrew Enzor**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Andy Pace**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Binoy Dharsi**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Camille Gilsenan**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Garth Graham**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Joe Colebrook**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Joseph Dunn**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Kyran Hanks**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Panel Member: **Paul Jones**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original						
WACM1						
Voting Statement						

Vote 2 – Which option is the best?

Panel Member	BEST Option?	Which objectives does this option better facilitate? (If baseline not applicable).
Andrew Enzor		
Andy Pace		
Binoy Dharsi		
Camille Gilsenan		
Garth Graham		
Joe Colebrook		
Joseph Dunn		
Kyran Hanks		
Paul Jones		

Panel conclusion
Panel will meet on 26 April 2024 to carry out their recommendation vote.

When will this change take place?

Implementation date
1 April 2025

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.

Interactions

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

Several modifications (CMP315/CMP375, CMP419 and CMP423) may be approved and implemented alongside CMP413, if also approved. However the impact of these modifications may be partially or wholly effectively postponed if approved later than CMP413 implementation. Whether the Original or a CMP413 WACM is approved may also impact to what extent any interacting modifications are implemented.

This modification does not relate to terms offered by the ESO for energy balancing and does not fall under the EBR regulation.

[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.

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
CPI	Consumer Price Index
CSNP	Centralised Strategic Network Plan
CUSC	Connection and Use of System Code
DCLF	DC Load Flow
DCLF ICRP	DC Load Flow Investment Cost Related Pricing
EBR	Electricity Balancing Guideline
ESO	Electricity System Operator
FES	Future Energy Scenarios
HND	Holistic Network Design
HVDC	High Voltage Direct Current
NOA	Network Options Assessment
SME	Subject Matter Expert
OTNR	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
TWR	Transmission Work Register
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	Proposers' solution and considerations Workgroup 1
Annex 4	SME TNUoS 10-Year Tariff Forecast/HND Methodology options
Annex 5	Confirmation of the flow direction on HND HDVC Circuit
Annex 6	Cap and Collar mechanism – Tariff methodology
Annex 7	10-year forecast example tool
Annex 8	Workgroup member version of the Tariff methodology 1
Annex 9	Workgroup member version of the Tariff methodology 2
Annex 10	Demand Impact
Annex 11	Generator Impact
Annex 12	Limiting Regulation and CMP413 Examples
Annex 13	Weightings of cap within locational elements
Annex 14	Workgroup Consultation Responses and Summary
Annex 15	Workgroup Alternative Requests and Suggestion
Annex 16	WACM1 Examples

Annex 17	WACM2 Discussion Points
Annex 18	WACM2 Fixing TNUoS Summary
Annex 19	Legal Text Original and WACM1
Annex 20	Workgroup Vote
Annex 21	Code Administrator Consultation Responses and Summary Table
Annex 22	Attendance Report
Annex 23	Action Log