CUSC Panel

Friday 26 April 2024

Online Meeting via Teams

WELCOME

Approval of Panel Minutes

Approval of Panel Minutes from the Meeting held

22 March 2024 and 12 April 2024

Action Log

Chair’s Update

Authority Decisions and Update (as at 18 April 2024)

Decisions Received since last Panel meeting

Modification	Decision	Implementation Date
CMP411 'Introduction of Anticipatory Investment (AI) within the Section 14 charging methodologies'	On 28 March 2024 the Authority approved the Original solution.	01 April 2025

Decisions Pending

Modification	Final Modification Report Received	Expected Decision Date
CMP286 'Improving TNUoS Predictability Through Increased Notice of the Target Revenue used in the TNUoS Tariff Setting Process'	08/02/2024	26/04/2024 (Previously 30/04/2024)
CMP315 'TNUoS Review of the expansion constant and the elements of the transmission system charged for' and CMP375 'Enduring Expansion Constant & Expansion Factor Review'	07/02/2024	30/09/2024
CMP330&CMP374 'Allowing new Transmission Connected parties to build Connection Assets greater than 2km in length and Extending contestability for Transmission Connections'	10/08/2023	08/05/2024
CMP392 'Transparency and legal certainty as to the calculation of TNUoS in conformance with the Limiting Regulation'	13/10/2023	30/04/2024
CMP396 'Re-introduction Of BSUoS on Interconnector Lead Parties'	05/01/2024	31/05/2024
CMP408 'Allowing consideration of a different notice period for BSUoS tariff settings'	13/10/2023	TBC
CMP414 'CMP330/CMP374 Consequential Modification'	10/08/2023	08/05/2024
CMP415 'Amending the Fixed Price Period from 6 to 12 months'	13/10/2023	TBC

The Authority's publication on decisions can be found on their website below:
https://www.ofgem.gov.uk/publications/code-modificationmodification-proposals-ofgem-decision-expected-publication-dates-timetable

Draft Final Modification Report

CMP428: User Commitment liabilities for Onshore Transmission circuits in the Holistic Network Design

Milly Lewis

Solution

Solution:

- The Proposer’s solution is to amend the Attributable Works definition in CUSC Section 11 by creating an exception for circuits deemed by the Authority to be onshore transmission (reinforcement). This would ensure onshore transmission (reinforcement) in the HND is not classified as Attributable Works. New definitions have also been created for Excepted Works

Code Administrator Consultation Responses

Summary of Code Administrator Consultation Responses :

- Code Administrator Consultation was run from 15/04/2024 to 18/04/2024 and received 7 non-confidential responses and 0 confidential responses. Key points were:
  - All seven respondents stated the Original Proposal better facilitates the CUSC objectives than the Baseline.
  - All seven respondents stated they support the proposed implementation approach.
  - Two respondents highlighted that the definition of Excepted Works should be expanded to include asset classification from any future CSNP once CSNP has been included in the ESO Transmission Licence.
  - No legal text issues identified.

CMP428 – the asks of Panel

- **NOTE** that this Modification does not impact the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the CUSC?

- **VOTE** whether or not to recommend implementation

- **NOTE** next steps

CMP428 Next Steps

Milestone	Date
Draft Final Modification Report issued to Panel	23 April 2024
Draft Final Modification Report presented to Panel	26 April 2024
Final Modification Report issued to Panel to check votes recorded correctly	26 April 2024 (4pm – 4:30pm)
Submission of Final Modification Report to Ofgem	26 April 2024 (by 5pm)
Ofgem decision date	ASAP
Implementation Date	14 June 2024

Draft Final Modification Report

CMP413: Rolling 10-year wider TNUoS generation tariffs

Claire Goult

Solutions

- **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.

- **WACM1:** This Alternative 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.

Code Administrator Consultation Responses

Summary of Code Administrator Consultation Responses :

The Code Administrator Consultation was run from 26 February 2024 to 18 March 2024 and received nine non-confidential responses, one late non-confidential response and one confidential response.

Key points were:

- Seven respondents stated the Baseline better facilitates the CUSC objectives than the Original and WACM1.
- One respondent supported the proposed implementation approach.
- Respondents supportive of the Original Proposal felt providing a centralised forecast would ensure a level playing field, be more efficient and protect generators from unpredictable tariffs.
- Respondents not supportive of the Original or WACM1 felt any benefits rely on the accuracy of the forecast which currently has many caveats and therefore tariffs are likely to be less cost reflective.
- Four respondents felt the solution was too complex. Respondents noted the additional complexity of the calculation would cause difficulties for both the administration of the charging methodology and user application.
- One respondent suggested the solution is flawed as it could be amended by future modifications.
- Four respondents not supportive of either solution noted WACM1 was a marginally better as collecting additional revenue from generation reduces the impact on demand customers.
- No legal text issues identified.

CMP413 - the asks of Panel

- **NOTE** that this Modification does not impact the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the CUSC?

- **VOTE** whether or not to recommend implementation

- **NOTE** next steps

CMP413 Next Steps

Milestone	Date
Draft Final Modification Report presented to Panel	26 April 2024
Final Modification Report issued to Panel to check votes recorded correctly (5 working days)	30 April 2024 – 7 May 2024 (Bank Holiday included)
Submission of Final Modification Report to Ofgem	08 May 2024
Ofgem decision date	30 September 2024 due to being a change to the Charging Methodologies
Implementation Date	01 April 2025

Draft Final Modification Report

CMP418: Refine the allocation of Dynamic Reactive Compensation Equipment (DRCE) costs at OFTO transfer

Claire Goult

Solution

Proposer's Solution:

The recommendation is to move the costs associated with DRCE for OFTO-connected wind farms to the wider tariff, through the proposed change to the charging methodology of the CUSC. This approach would ensure a more appropriate allocation of DRCE costs and recognise the broader benefits that DRCE provide to the grid while encouraging the further development and integration of offshore wind farms into the National Electricity Transmission System (NETS). This would involve allocating the cost of DRCE out of the "Circuit Tariff" into the "Onshore Substation Tariff." This removes the cost from the Generators annual local offshore tariff and includes it in the general TNUoS via the demand residual.

Code Administrator Consultation Responses

Summary of Code Administrator Consultation Responses :

The Code Administrator Consultation was issued on the 26 February 2024 closed on 21 March 2024 and received three non-confidential responses.

Key points were:

- Two respondents stated the Original better facilitates CUSC objectives a and b than the Baseline.
- Two out of the three respondents supported the implementation approach.
- Respondents supportive of the Original proposal felt the solution would correct a commercial defect in the treatment of offshore and onshore wind and would support future offshore wind projects.
- The respondent not supportive of the Original proposal felt the solution would artificially shift the costs from generation to demand and would create distortions through costs not being appropriately allocated. The respondent also felt the solution had not demonstrated any benefit to consumers or provided analysis of the consumer impact.
- No legal text issues identified.

CMP418 - the asks of Panel

- **NOTE** that this Modification does not impact the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the CUSC?

- **VOTE** whether or not to recommend implementation

- **NOTE** next steps

CMP418 Next Steps

Milestone	Date
Draft Final Modification Report presented to Panel	26 April 2024
Final Modification Report issued to Panel to check votes recorded correctly (5 working days)	30 April 2024 – 7 May 2024 (Bank Holiday included)
Submission of Final Modification Report to Ofgem	08 May 2024
Ofgem decision date	30 September 2024 due to being a change to the Charging Methodologies
Implementation Date	01 April 2025

New modification submitted

CMP433 - Optimised Transmission Investment Cost

Joe Dunn and Dena Barasi, Scottish Power

Critical Friend Feedback – CMP433

Code Administrator comments	Amendments made by the Proposer
Timeline of modification query (inclusive of time of raising) Minor wording and formatting changes	Proposer accepted all amendments made by the Code Administrator

OpTIC

CUSC Modification Proposal CMP433:
Optimised Transmission Investment Cost

26.04.2024

SCOTTISHPOWER

Industry Engagement

Industry Engagement

Over the past 3 years ScottishPower have developed OpTIC from concept through to solution. Industry have helped support through continued engagement

Industry Engagement

- Industry Experts across ongoing workshops and bilateral discussions:
  - *Workshops:*
    - NESO and Ofgem
    - Ofgem and DESZ
    - Trade bodies (RUK, EUK, SR)
    - Bilateral meetings with generators.
  - TNUoS Task Force (September)
  - TCMF – updates from April '23 through to a more detailed presentation 3rd April

Feedback has helped shape and develop the proposal including highlighting areas that will require to be developed during workgroup

Overview of Mod Proposal and contents

Overview of Modification Proposal and its contents

To aid reading and understanding of the proposal, a number of annexes have been used

CMP433: Optimised Transmission Investment Cost model (OpTIC)

- Issue and defect summary
- Proposer's solution
- Out of Scope
- OpTIC addressing defects
- Practical Implementation
- Deriving OpTIC charges
- Linking to CSNP*

Annex 1 – *Purpose of Locational Signals*

- Short (half page) background to the purpose of locational signals

Annex 2 – *Defects with the current ICRP Methodology*

- 4 page expansion of the defects summarised in the main proposal document

Annex 3 – *Background to current TNUoS*

- 4 page overview of the current methodology including the building blocks of how charges are calculated.

Annex 4 – *Comparing SRMC and LRMC signals*

- Short section on Long Run Marginal Cost and Short Run Marginal Cost , how and how they compare including the challenges with each

Annex 5 – *Illustrative Impact*

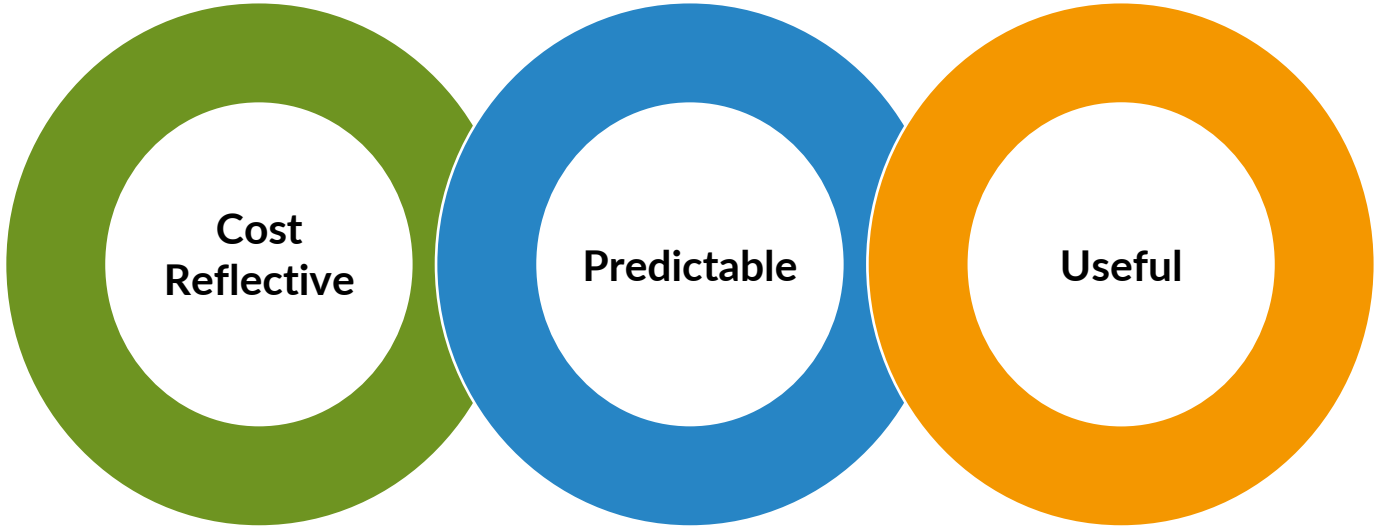
- Illustration of possible charges using the OpTIC methodology

***** - CSNP (Centralised Strategic Network Plan) is referred to throughout this presentation as the expected framework for identifying and assessing transmission investment options. NOA is also used when referring to the current process*

Issue & Defects

What is the Issue?

Locational signals are currently provided via wider TNUoS charges for users within GB. ***Ofgem's*** *strategic transmission reform letter set the importance of signals*



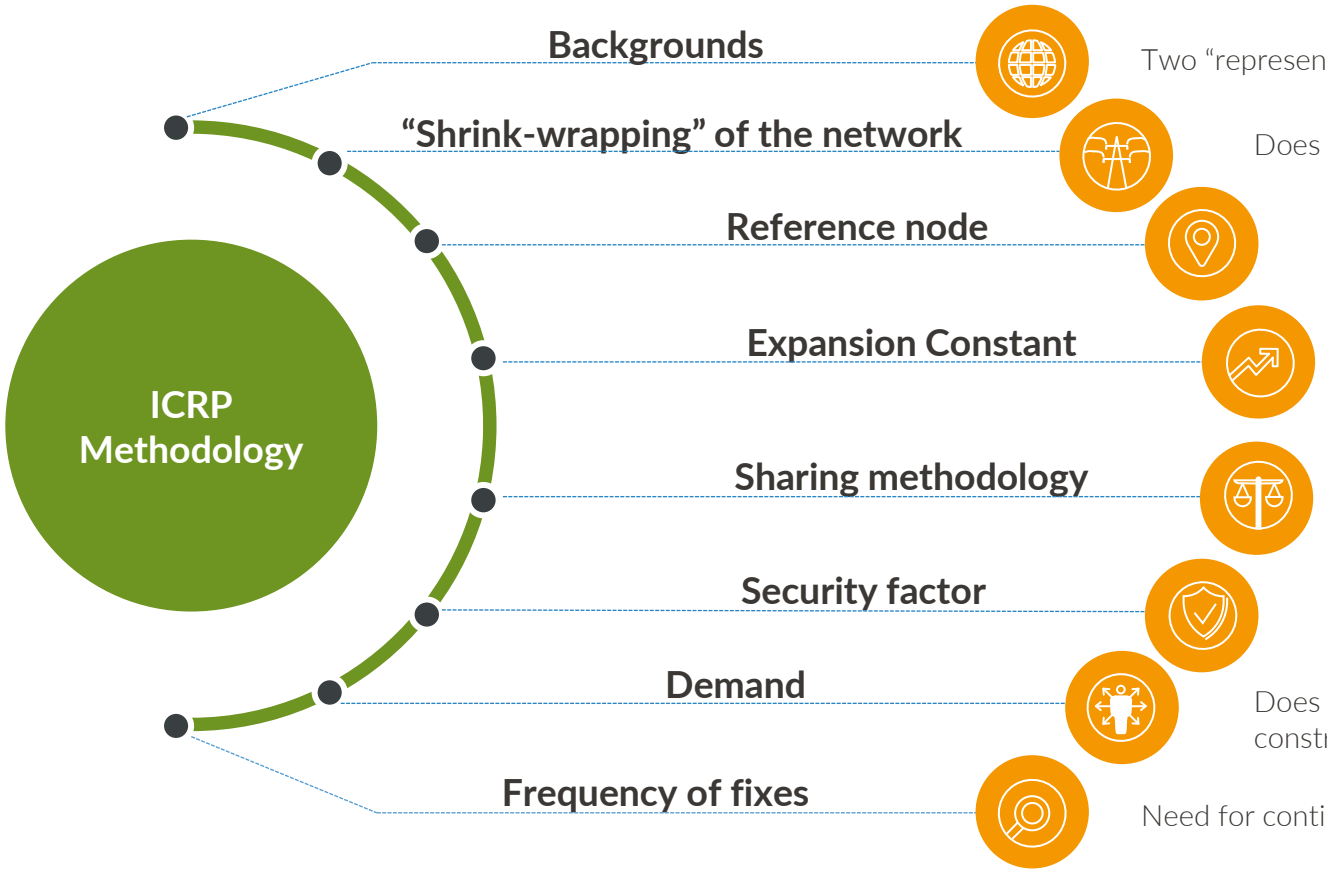
Locational signals should incentive efficient use of the network by market participants (G&D)

Efficient locational signals should reflect the forward-looking costs or benefits of a market participants actions

Sent to assets that have reasonable ability to respond to them

Reform options need to consider the potential trade-offs between these objectives, which can often be in tension

Defects



Two "representative" static backgrounds represent market behaviour of participants

Does not account for spare capacity and is sized to 'just' fit all network flows

Location must be fixed having important implications for the relative locational signal between high & low load factor plants

Costs of building out transmission network is embodied in a single EC (£/MWkm) and a set of Expansion Factors (abstract from specific costs)

Simplifies significant complex relationships, which are likely to evolve

Estimated and applied as an uplift on all network elements despite differences in requirement for redundancy

Does not recognise beneficial behaviour by demand for relieving constraints and year costs

Need for continued improvements as the system evolves creating ongoing uncertainty

The ICRP methodology currently oversimplifies the reality of a complex system and applies static relationships which are cumbersome to change as the system evolves

Case for change

Why Change?

GB Market participants require change to the transmission charging methodology to deliver more predictable and cost reflective charges

Purpose of Locational Signals

- To incentivise investors in generation, load and flexible assets to site their investments in ways which take into account the value of their contribution
- Key driver for reform is to improve locational investment decisions

Investing in Net Zero

- Significant amount of new investment required in generation and network capacity to achieve Net Zero
- Focus alongside this to minimise the energy transition costs and ensure networks are efficiently utilised and expanded

Basis of Improvement

- Better accuracy representing true forward-looking costs that market participants create as a result of their actions
- Become more investable that users can predict their value and account for them within investment decisions

Better reforms are those which reflect a better balance between the attributes of cost reflectivity and predictability resulting in investibility

Proposed Solution

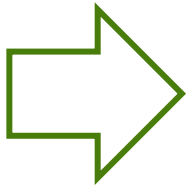
Proposed Solution – In principle description of OpTIC

To send a locational investment signal similar to that which generation, demand and storage would have faced under a locational SRMC market (e.g. zonal), but is less impacted by deviations from optimal levels of network investment (therefore more stable and predictable) - See also Annex in slide pack: Comparing SRMC and LRMC

- National wholesale electricity market continues with compensation for constraint management and annually set transmission network charges
- Market participants face an investment signal from network charges analogous to zonal market if network investment was optimal

OpTIC would amend the detail of the network charges which would be based on the difference between:

- estimates of [plant revenues /demand user's costs] under a national market;[2] and
- estimates of [plant revenues /demand user's costs] under an SRMC market[3] with optimal transmission investment



OpTIC Model run with unconstrained (UC) network

- **unconstrained** run mimics status quo, (national market price)

vs.

OpTIC Model run with constrained (C) network

- **constrained** run mimics market with zonal marginal pricing

OpTIC charges attempt to leave a market participant in the position that they would have been in had they been in a locational SRMC market with optimal network investment

2 - Including compensation for curtailment.

3 - With no compensation for curtailment and market revenues based on zonal prices.

Proposed Solution – Key Features of OpTIC

A key feature of OpTIC is that charges are calculated based on an assumption of optimal network investment

Optimal network investment relates to the expansion of the network to the point where the marginal cost of investment (i.e. the cost of the next MW of network capacity) is equal to the marginal benefit of investment (i.e. savings in costs of serving demand due to reduced congestion)

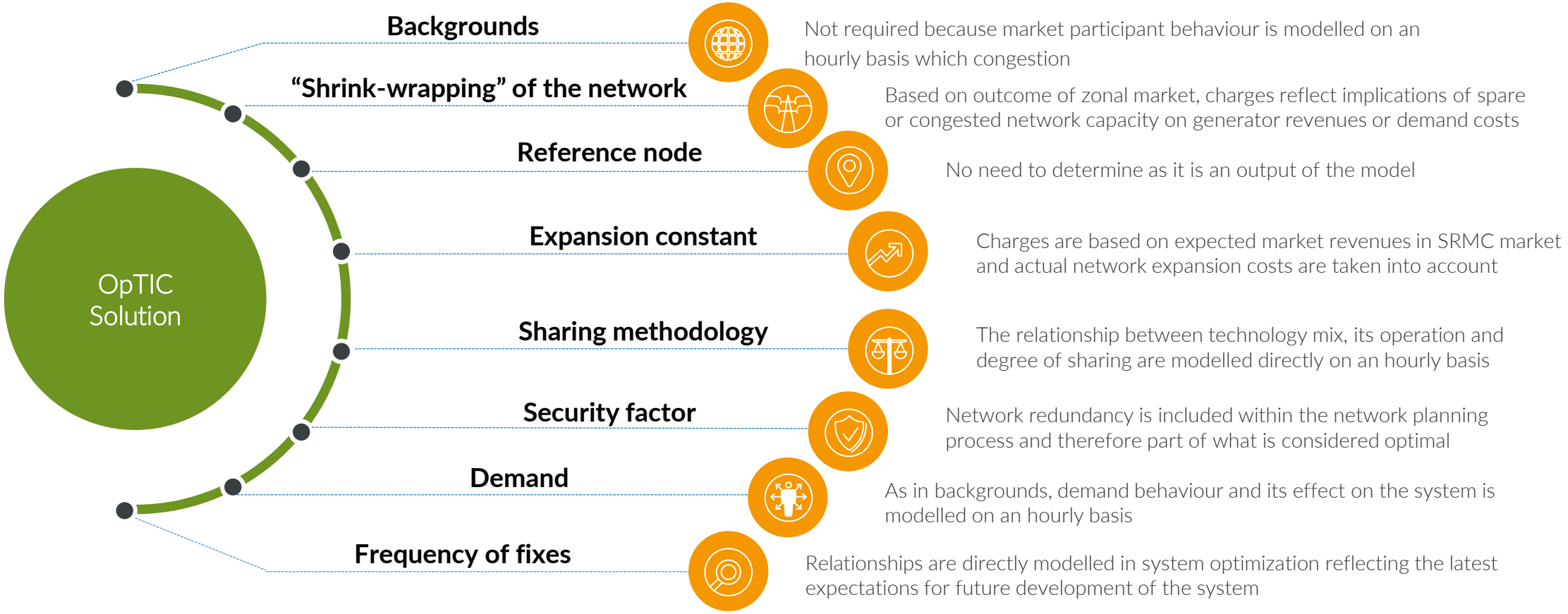
"An optimal network represents an efficient balance between physical congestion and network costs"

OpTIC is neither pure LRMC or pure SRMC in approach but represents a practical alternative that includes some of the benefits of LRMC and SRMC based approaches:

- The OpTIC model more accurately captures SRMC based locational signals arising from network congestion in charges by modelling generation and demand behaviour across all hours of the year on a zonal basis
- Similar to an SRMC based approach, OpTIC does not require the development of simplified assumptions that create a static context as under ICRP such as backgrounds, a sharing methodology or the need to define a reference node as is the case under ICRP
- OpTIC assumptions will be made consistent with those used to determine the optimal network investment (covered later)
- Because the charges are derived based on optimal investment (i.e. efficient and timely investment, not actual investment), they are not subject to the unpredictability that arises due to delays to the build out of efficient transmission investment, and which can be observed in markets with pure SRMC based locational signals

To the extent optimal investment is not achieved in reality, investors are not exposed to the cost of such delays, and hence OpTIC should create a predictable signal to which investors can more readily respond

Proposed Solution: How OpTIC Addresses ICRP Defects

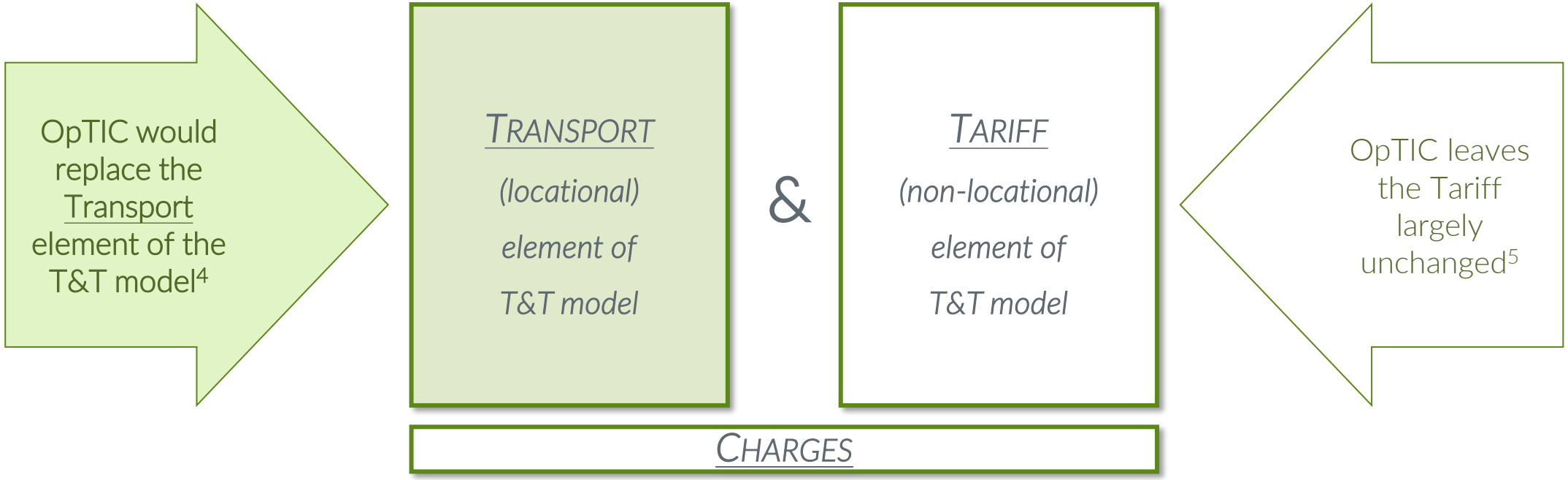


OpTIC models outcomes of a zonal market across all hours of the year and therefore does not require the same simplifying assumptions applied in ICRP

Where OpTIC fits in to current methodology

Where OpTIC fits into current Methodology

Overview: *OpTIC replaces the Transport component of the Transport and Tariff (T&T) model with an economic market model that reflects proposed network investment.*



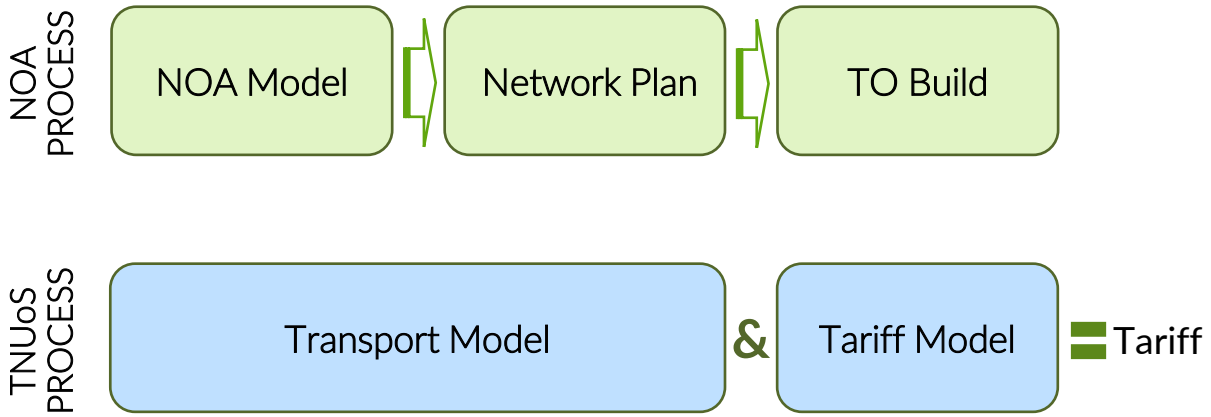
4 - The ICRP model derives Local Circuits charges

5 - Annual Load Factors would not be required

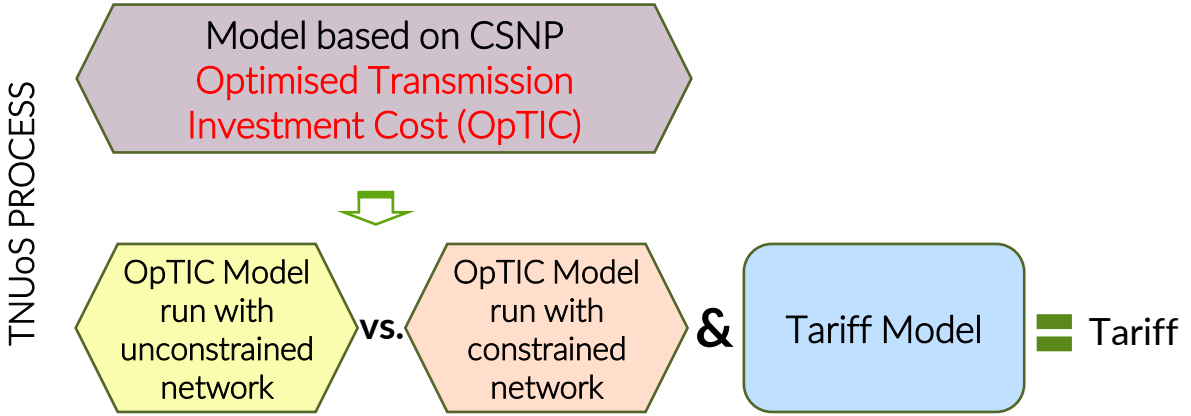
Where OpTIC fits into current Methodology

*Currently, NGESO proposes economic TO build proposals through the NOA, **'separate'** to the TNUoS transport model*
*Under OpTIC, TNUoS charges would be determined on the same basis as the CSNP **in an optimised system***

Illustrative Current Processes



Illustrative OpTIC TNUoS Process



- the **unconstrained** run mimics status quo, (with national market price)
- the **constrained** run mimics a market with zonal local marginal pricing

Network charges would be based on the difference between estimates of [plant revenues /demand user's costs] under a national market *and* estimates of [plant revenues /demand user's costs] under an SRMC market with optimal transmission investment

Proposed Solution

Proposed Solution: CSNP Process linked to OpTIC methodology

The derivation of OpTIC charges begins with the CSNP process which identifies a single set of investments across a range of scenarios up to 15 years out

Key Steps to derive OpTIC charges

CSNP process

Identification of optimal network investments

- *TOs identify potential investment options*
- *Final set of options for assessment identified following ESO review*
- *Economic assessment of options against a range of scenarios, currently related to FES scenarios*
- *Set of optimal investments identified for each scenario*
- *Least Worst Regrets (LWR) analysis to identify single set of investments options*

OpTIC process

Market optimisation of dispatch

National "unconstrained" optimisation

Zonal "constrained" optimisation

Information taken from CSNP as inputs to OpTIC modelling (including network build assumptions)

Calculation of network charges

- Calculation of annual tariffs (£/kW), based on difference between unconstrained and constrained revenues/costs.
- Charge per generator and demand type in each zone.

1. CSNP identifies set of optimal investments
2. ESO determines zones
   - *(currently 38) – current OpTIC proposal will retain 27 zones*
3. OpTIC carries out two runs (unconstrained and constrained) of system wide market optimisation of dispatch based on a central future scenario
   - *Optimisation would be over 5 years and averaged*
4. *Network charges are calculated*

The OpTIC process would require to consider a single central scenario consistent with the CSNP

Proposed Solution: Main assumptions mapped between Network Planning and OpTIC

While CSNP model outputs and OpTIC inputs align well, the current process uses all four scenarios which would make running OpTIC inefficient. A Required In Service Date would be required

Network planning inputs

Current network

Current network data
- Current network constraints and key boundaries for constraint costs

TO data

Reinforcement options data
- Available options from TOs
- Costs of those options and achievable delivery dates
- Path dependencies between options

Market scenario

Market and stochastics data
- Demand, wind and solar stochastics
- Commodity prices, including Carbon

Supply and demand data
- Capacity mix
- Peak and annual demand projections
- Locations of plant and demand

Network reinforcement process

Constraint cost modelling
- Given a set of boundary capabilities, model benefits of additional reinforcements

Iterative process to identify "optimal" investments

Network reinforcement optioneering
- Consider additional single or sets of reinforcements
- NGESO judgement on optimisation process

OpTIC inputs

OpTIC takes the reinforcement pathway from the network reinforcement and applies consistent market, supply and demand assumptions to calculate charges

"Optimal" reinforcement pathway
- New Required In Service Date output from CSNP Modelling
- Reflecting boundary capabilities and investment

Market and stochastics data
- Demand, wind and solar data
- Commodity prices, including Carbon

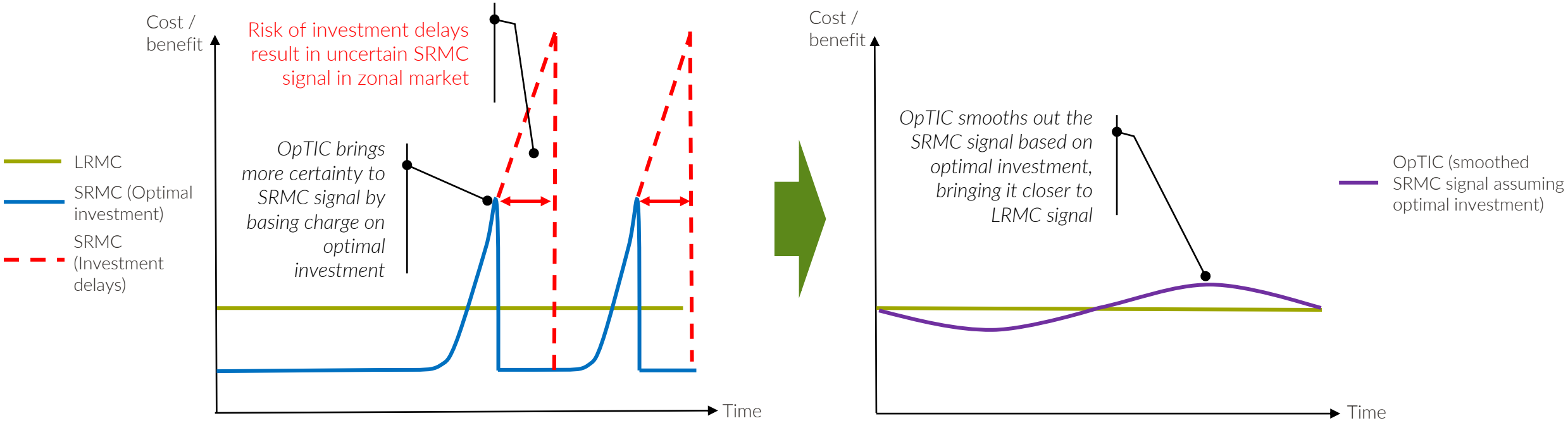
Supply and demand data
- Capacity mix
- Peak and annual demand projections
- Locations of plant and demand

Ofgem's intention is that the FES switches from four scenarios to be *"more directive about the type and scale of investment needed"* through *"strategic pathways"* with a *"shared single short-term view"*

Proposed Solution: Key aspects of OpTIC methodology

OpTIC represents a practical option that strikes a balance between variations of the status quo and SRMC.

- Charges based on optimal investment bring more certainty to the volatile SRMC based investment signal without the uncertainty about pace of network development
- OpTIC methodology will smooth out the volatility of the SRMC based locational signal by averaging charges over 5 years

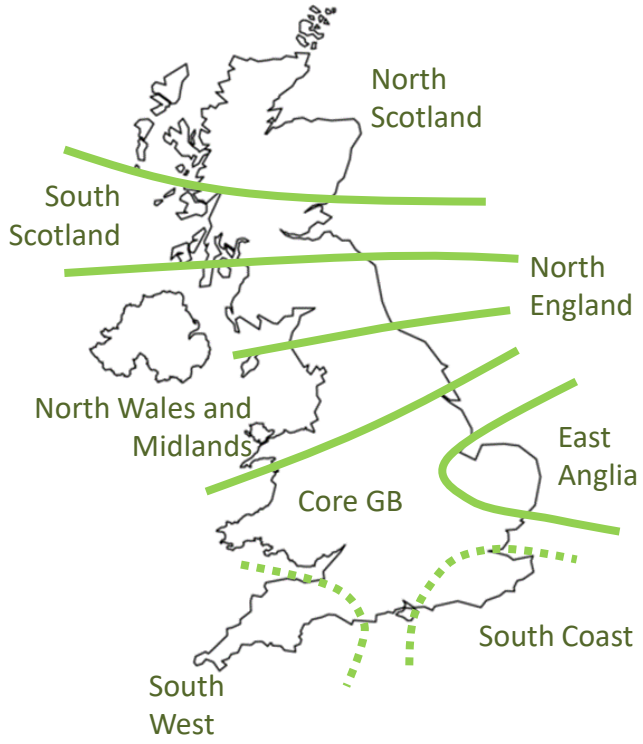


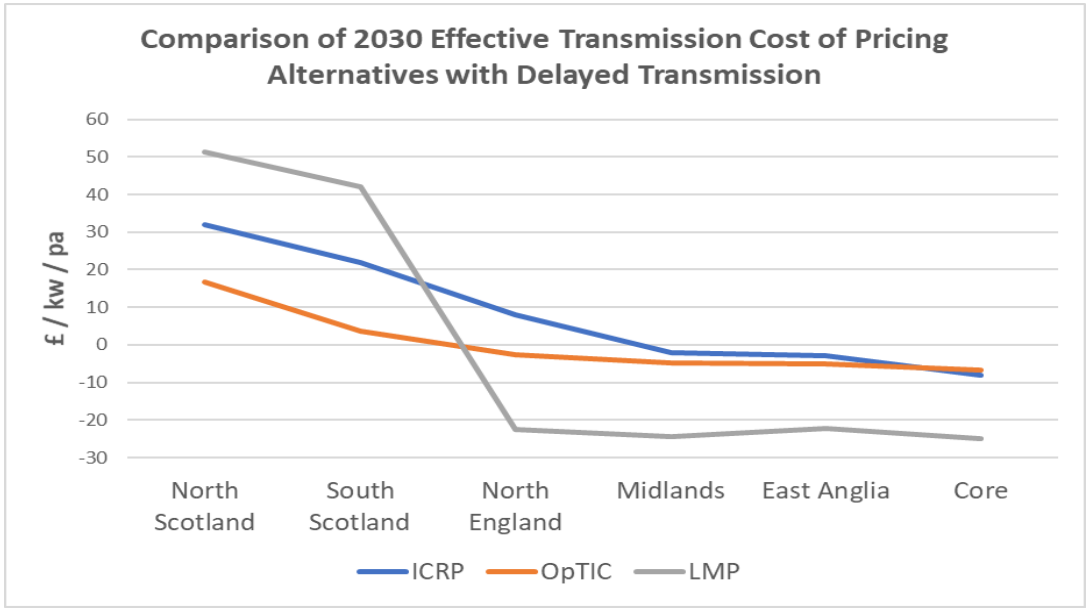
OpTIC brings more certainty to the SRMC signal… and …OpTIC smooths out the volatility of the SRMC signal

(see Annex in slide pack: Comparing SRMC and LRMC)

Proposed Solution: Illustrative charges

Trident Economics' scenario run to show transmission build delay capping capacity at 9GW behind the South Scotland to North England boundary with an optimised addition of 13.5GW





Results produced by Trident Economics

While ICRP charges rise linearly with an increase in renewable capacity, OpTIC charges respond to dispatch optimisation having a smaller impact on constraint costs, while LMP responds as expected with a sub-optimal network

Out of Scope

Proposed Solution - Out of Scope of OpTIC

The focus of this modification proposal is on the replacement of ICRP with OpTIC to derive £/kW wider TNUoS charges

Recognising that other areas are being considered or are required to be developed and that ICRP also produces local circuit charges there may be a need to reform other parts of charging

However, at this time and due to the scale/complexity of likely workgroup discussions, we are leaving some closely related areas out of scope of the modification proposal

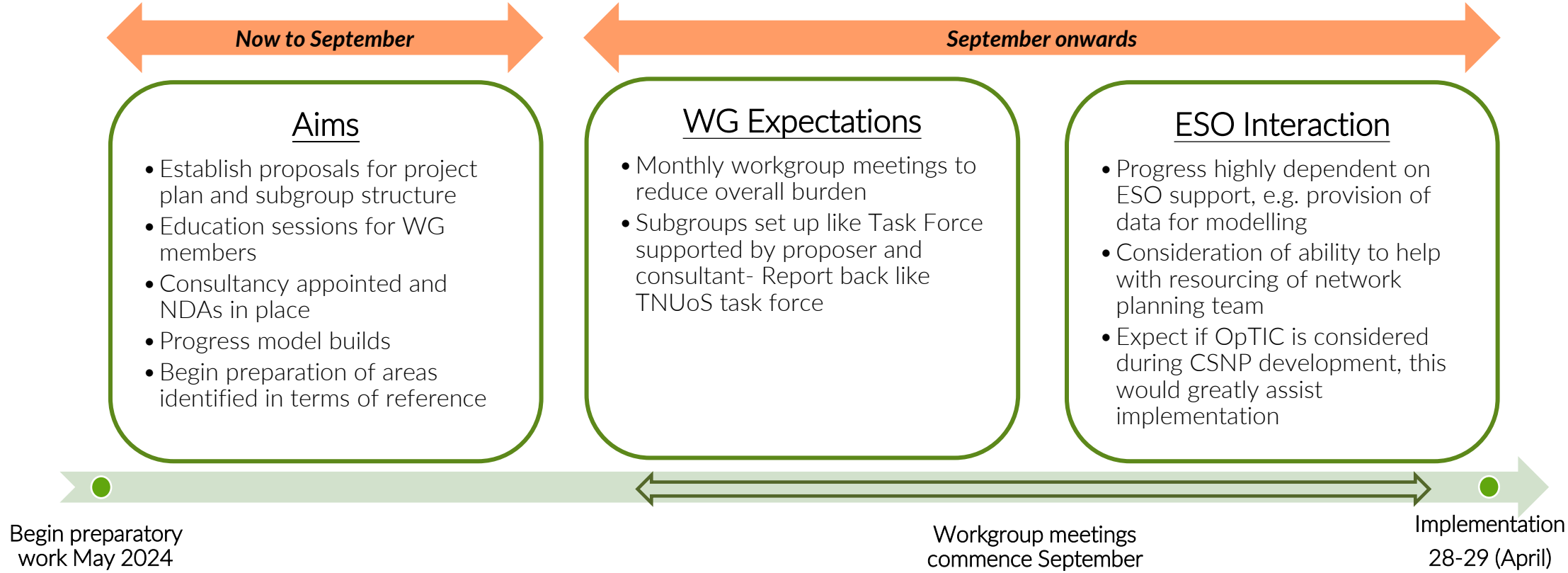
1. How charges impact embedded generators	2. The structure and methodology of local circuit charges	3. The structure and methodology of offshore charges	4. The structure of final demand charges (e.g. triad charges, volumetric charges, etc)
Not yet considered but currently discrete from OpTIC	*While OpTIC does not impact local circuit charges but can facilitate alternative methodologies*	*OpTIC is flexible enough and can be extended to accommodate offshore network development*	*The structure of final demand charges could be amended to align with the intent of the OpTIC model*

Our expectation is that there would be modifications raised to these areas that will run in parallel to and in conjunction with this modification

Next Steps

Next Steps

Recognising the volume of mods in flight and to be progressed, and limitation on resources (industry and ESO), highly unlikely to commence workgroup meetings before September 2024



Consideration of website/shared area (like 'Charging Futures') to compliment ESO Mod page to capture areas like FAQs, position updates, presentations, vlogs etc.

Q&A

Annex: Comparing SRMC and LRMC

Comparing SRMC and LRMC

In theory, cost reflective locational signals can either be based on long run marginal costs (LRMC) or short run marginal costs (SRMC)

LRMC

*Under a **national wholesale pricing** approach, network charges (e.g. TNUoS) are means of sending locational signal - typically based on the LRMC of expanding the network*

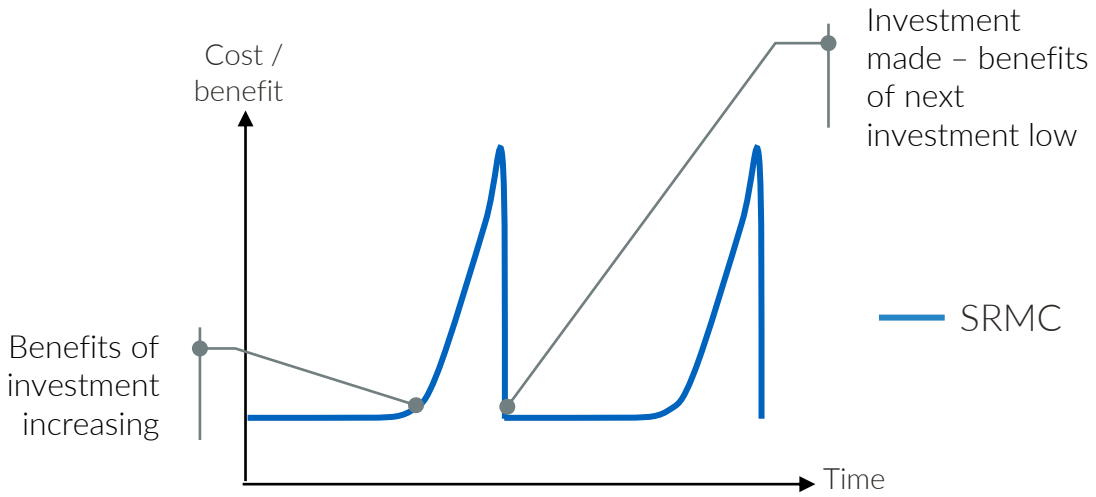
SRMC

*Under a **zonal wholesale pricing** approach, locational signal is embedded in wholesale energy price differentials (i.e. SRMCs) between locations, taking network capacity as it actually is at any point in time*

Zonal wholesale prices (i.e. SRMC based signals):

- G&D are incentivised to produce and consume to avoid congestion
- Price differentials between zones represent the value at the margin of a MWh of incremental transmission
- The value of incremental transmission rises (i.e. the price differentials between zones increase) as congestion increases and falls as congestion declines (e.g. following network investment)

Example of cost/benefit of SRMC signal



The SRMC signal reflects the lumpy nature of investment and the impact of spare capacity following investment on the case for further investment in the short term

Comparing SRMC and LRMC

Although the signals are very different in nature, SRMC and LRMC signals should in theory result in the same expected locational signal over time if the network is developed optimally

Optimal Expansion

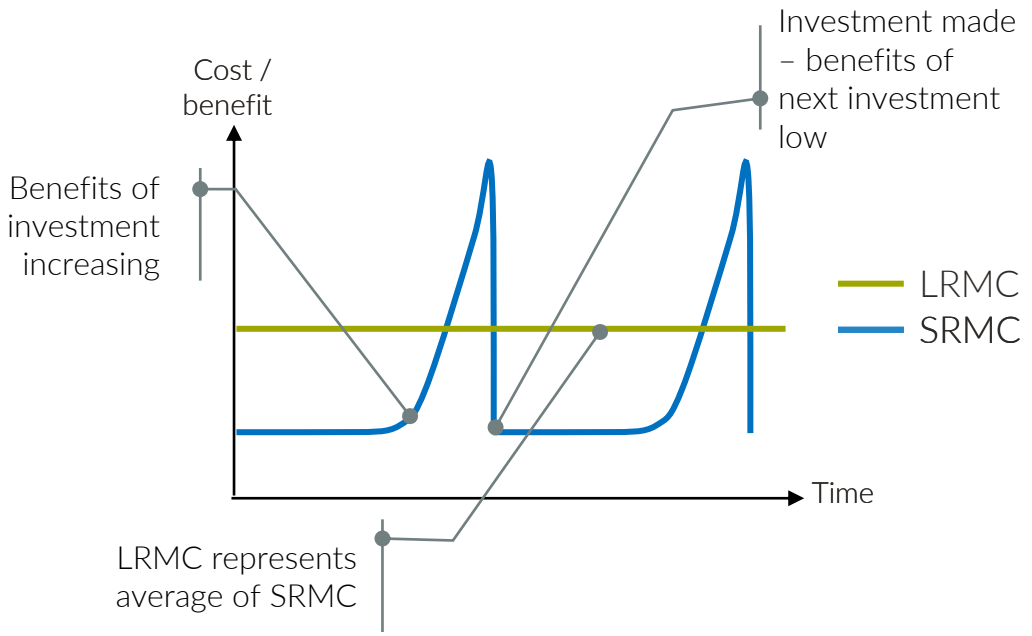
- The cost of incremental investment (i.e. the LRMC) is expected to equate to the benefit society derives from the investment
- This relates to the difference in energy costs between locations resulting from lack of capacity (i.e. the SRMC)

LRMC & SRMC Divergence

- In practise LRMC and SRMC diverge as a result of network development diverging from optimal development
- Once optimal investments have been identified, investments typically have long lead times and are subject to delays

While SRMC based signals send accurate locational signals, if these are related to the network conditions that exist they are both unpredictable and volatile and transfer a network development risk to market participants which is out of their control

Comparison of LRMC and SRMC Signals



SRMC signals are unpredictable and volatile and transfer a risk to market participants which is out of their control

Timeline for CMP433 – Proposed Timeline - *Workgroup*

Milestone	Date	Milestone	Date
Modification presented to Panel	26 April 2024	Code Administrator Consultation (1 calendar month)	04 November 2025 to 04 December 2025
Workgroup Nominations (15 Business Days)	13 May 2024 to 04 June 2024	Draft Final Modification Report (DFMR) issued to Panel (5 working days)	22 January 2026
Workgroup 1 - Discuss proposal and solution(s), review and agree on ToR and Timeline Workgroup 2 to - Refine solution(s), draft legal text, consider potential Workgroup Consultation questions and finalise Workgroup Consultation	10 September 2024 08 October 2024 05 November 2024 10 December 2024 06 January 2025 03 February 2025 03 March 2025	Panel undertake DFMR recommendation vote	30 January 2026
Workgroup Consultation (1 calendar month)	13 March 2025 – 14 March 2025	Final Modification Report issued to Panel to check votes recorded correctly	02 February 2026 to 09 February 2026
Workgroup 8 and 9 - Review Workgroup Consultation responses, consider new points raised, refine solution, review legal text and discuss any potential alternatives Workgroup 10 and 11 – Finalise solutions (including legal text) and alternatives and hold alternative vote. Workgroup 12 - Finalise Workgroup Report and hold Workgroup Vote	12 May 2025 09 June 2025 14 July 2025 11 August 2025 15 September 2025	Final Modification Report issued to Ofgem	10 February 2026
Workgroup report issued to Panel (5 working days)	23 October 2025	Ofgem decision	31 March 2027
Panel sign off that Workgroup Report has met its Terms of Reference	31 October 2025	Implementation Date	01 April 2028

CMP433 – the asks of Panel

- **AGREE** that this Modification has a clear defect and scope
- **AGREE** that this Modification should follow Standard Governance (Ofgem decision) rather than the Self-Governance Criteria (Panel decision)
- **AGREE** that this Modification should proceed to Workgroup
- **AGREE** Workgroup Terms of Reference
- **NOTE** that there appear not to be any impacts on the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the CUSC
- **NOTE** the proposed timeline

New modifications submitted

CMP434 - Implementing Connections Reform
Joe Henry, ESO

CMP435 - Application of Gate 2 Criteria to existing contracted background
Alice Taylor, ESO

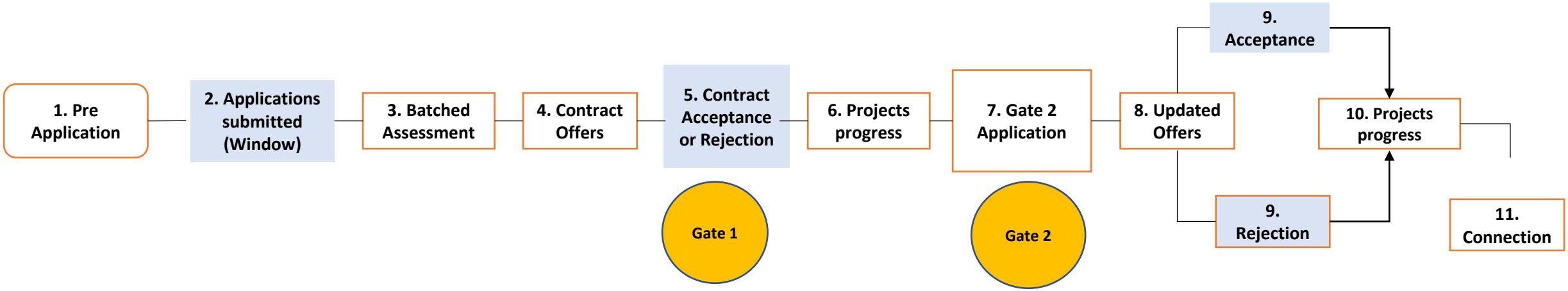
Critical Friend Feedback – CMP434 and CMP435

Code Administrator comments	Amendments made by the Proposer
Timeline and scope of Workgroup meetings commentary Formatting and spelling amendments	Proposer accepted all amendments made by the Code Administrator

Target Model Option (TMO) 4 – Dec 23

Annual Application Window – Pre-Application Stage to Gate 1

Reactive Queue Management + and Contract Management



Final Recommendations – December 2023
Whether queue position would be allocated at Gate 1 or Gate 2
Appropriate milestone for Gate 2
Application window frequency and duration

What has changed?

- Total connections queue could reach 800GW by the end of 2024
- Industry interventions successful, but outpaced by growth
- Considered options for further and faster reform

Recommendation

Extend reformed process to contracted projects

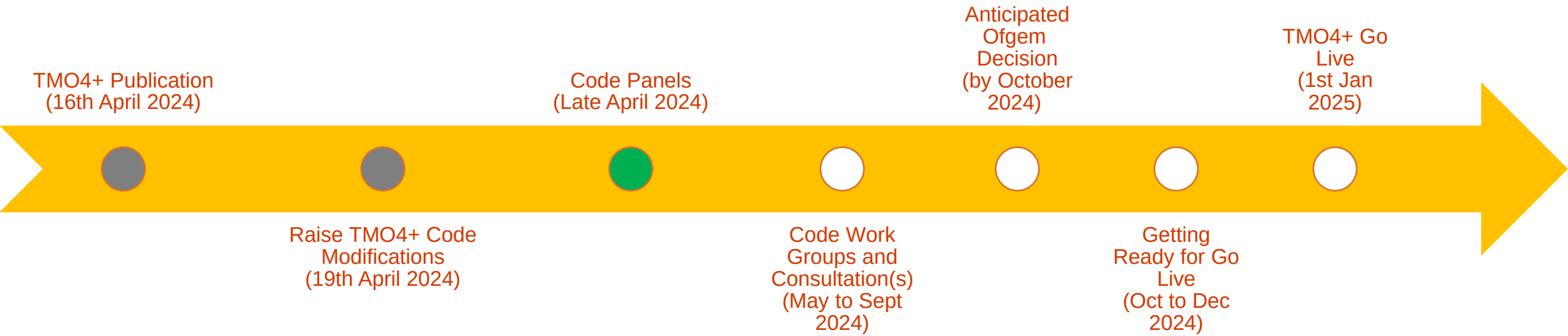
TMO4+ (Gate 2 to Whole Queue Approach)

TMO4+ Key Points
First ready, first connected approach
Queue positions, connection dates and points = Gate 2
Indicative connection dates and points = Gate 1
No user commitment or queue management milestones for contracted projects Pre-Gate 2
Existing queue given time to demonstrate Gate 2

Analysis predicts:

- **Could potentially more than halve the size of the queue, enabling earlier connection dates for projects that have met Gate 2.**
- **Earlier connection dates (projects that met Gate 2)**

Implementation



We will continue to provide updates at industry forums and via governance groups. Industry will have the opportunity to participate in the Code Modification Workgroups and/or respond to consultations

Code Modifications

Code Modification Structure

Implementing Connections Reform (CUSC and STC) (Urgent)

Prospective application of Application Windows and Gates i.e. Gate 1 and Gate 2

Gate 1 Indicative Connection Dates and Connection Points

No User Commitment or Queue Management Milestones at Gate 1

Gate 2 Criteria and Changes to Queue Management Milestones

Letter of Authority Phase 2 e.g. Offshore, Duplication Checks, etc

Distribution Forecasted Transmission Capacity

Gate 2 to Whole Queue (CUSC and STC) (Urgent)

Retrospective Application of Gate 2 to Whole Queue – Potential Advanced Connection Dates

Pre-Gate 2 Indicative Connection Dates and Connection Points

Pre-Gate 2 Removal of User Commitment and Queue Management Milestones

Transitional Arrangements

There will also be STCP changes (in parallel) and potentially DCUSA changes (at some point) as a result of the CUSC and STC changes.

CMP434 - Implementing Connections Reform

Context

The current connections process is not enabling the timely connection of projects to meet net zero.

A wholesale revision is needed to the connections process to meet those targets and the needs of project developers and consumers.

This proposal introduces new processes and definitions that will update the existing processes and enable projects that are most ready to progress more rapidly to connection.

The ESO will seek to raise this modification on an Urgent Basis to expedite the process, to enable implementation for 1st January 2025

What does the modification propose (1)?

- The current connections process is not enabling the timely connection of projects to meet net zero. A wholesale revision is needed to the connections process to meet those targets and the needs of project developers and consumers. This proposal introduces new processes and definitions that will update the existing processes and enable projects that are most ready to connect more efficiently.

- Desired Outcome: Connections reforms delivered with a high degree of confidence in quality, pace, ambition and coordination of reform delivery, ensuring greater and faster impact of connection reform in reducing connection times as well as lower system and/or connection costs.

- These reforms are to be delivered by January 2025, as expressed by Ofgem and DESNZ in the Connections Action Plan (November 2023).

What does the modification propose (2)?

- The issue we are now seeking to resolve with this code modification as part of Phase 3 (detailed process design and implementation) of our GB Connections Reform project is to update the current and relevant codified aspects of the connection process (assuming the necessary corresponding licence changes are undertaken by Ofgem in due course), to align with our recommendations for a reformed connections process.

MVP Scope/Solution (1)

Element	Description
Introducing an annual application window and two formal gates, which are known as Gate 1 and Gate 2 (i.e. the primary process).	New connections process based on an annual application window and two formal gates
Clarifying which projects go through the primary process.	New Directly Connected Generation, New Directly Connected Demand, New Interconnectors (and Offshore Hybrid Assets), New Relevant Embedded Small Power Stations (via the DNO), New Relevant Embedded Medium Power Stations (via the DNO), New Embedded Large Power Stations and any significant Modification Applications in relation to such projects
Clarifying any deviations from primary process e.g. for certain technologies.	Giving certainty to industry as to where process differs for certain Customer groups
Setting out the process and criteria in relation to Application Windows and Gate 1, including introducing an offshore Letter of Authority equivalent as an application window entry requirement for offshore projects	For any projects which need to go through the annual application window (as above) the developers of those projects will only be able to submit their applications within January and February each year (assuming a 1 January go-live date)
Setting out the criteria for demonstrating Gate 2 has been achieved and setting out the obligations imposed once Gate 2 has been achieved.	Ensuring clarity in how Gate 2 can be achieved, incorporating Queue Management milestones

MVP Scope/Solution (2)

Element	Description
Updating LoA process	Setting out what are allowable amendments to red line boundaries once Gate 2 has been achieved; and the introduction of Duplication Checks on Gate 2 projects.
Setting out the general arrangements in relation to Gate 2	Ensuring clarity of how and when Gate 2 milestones are met
Changing the offer and acceptance timescales to align with the primary process timescales (e.g. a move away from three months for making licenced offers)	Moving away from 3 month window to align with primary process
Introducing the concept of a Connections Network Design Methodology (the content and any approvals of this to be covered outside Code Modification process)	The final recommendation for a reformed connections process includes a move away from an incremental and ad-hoc approach to assessing applications and network requirements, to a batched window-based approach to facilitate a more co-ordinated approach to network design for connections
Introducing the concept of a Distribution Forecasted Transmission Capacity (DFTC) submission process for Distribution Network Operator's (DNOs) to forecast capacity on an anticipatory basis for Relevant Embedded Small Power Stations or Relevant Embedded Medium Power Stations in the Application Window.	We intend to create a DFTC process so that DNOs can forecast capacity within application windows on an anticipatory basis. DNO's will do this within an application window by submitting a DFTC forecast, and at Gate 1, the DNOs will receive back indicative connection dates and locations.

MVP Scope/Solution (3)

Element	Description
Set out the process for how DNOs notify the ESO of Relevant Embedded Small Power Stations or Relevant Embedded Medium Power Stations which meet Gate 2 criteria.	The submission of projects that meet Gate 2 criteria will be issued to the ESO by the DNO via a batched submission. This process will need to be defined.

Proposer's Justification vs Ofgem's Urgency Criteria

The Proposer recommends that this modification should be treated as an Urgent Modification proposal and be assessed by a Workgroup.

Ofgem's Urgency Criteria	Proposer's Justification
a) A significant commercial impact on parties, consumers or other stakeholder(s).	We consider that Urgent treatment of the "Application of Gate 2 Criteria to existing contracted background" Modification is also required in parallel in order to have combined significant impact from the go live date of 1 January 2025. Since publication of the Connections Action Plan in November 2023, the transmission and distribution connection queue has continued to grow relentlessly and, at the current rate of growth, the total connections queue is likely to exceed 800GW by the end of 2024. Without intervention, we expect this trend to continue with a forecast average increase of ~20GW for transmission being added every month beyond end 2024, which could lead to a 1000GW+ queue by the time necessary changes are in place if an urgent timeline is not followed. This modification is intended to ensure that viable, ready to progress projects can receive earlier connection dates, and more quickly remove speculative connection applications from the queue. This should address the current issue that ready to progress projects are held up behind stalled, slow to progress or speculative applications. The gated process, proposed by this change, supports this by prioritising readier and/or more viable projects as it avoids allocating capacity to projects that aren't ready to progress. (Please see the Proposal form for full justification)
b) A significant impact on the safety and security of the electricity and/or gas systems.	n/a
c) A party to be in breach of any relevant legal requirements	n/a

Timeline for CMP434 – Proposed Urgent Timeline - *Workgroup*

Milestone	Date	Milestone	Date
Modification presented to Panel	26 April 2024	Code Administrator Consultation (9 Business Days)	19 August 2024 to 02 September 2024
Workgroup Nominations (4 Business Days)	26 April 2024 to 02 May 2024	Draft Final Modification Report (DFMR) issued to Panel (3 Business Days)	09 September 2024
Ofgem grant Urgency	01 May 2024(5pm)	Panel undertake DFMR recommendation vote (Special Panel)	13 September 2024 (by 2pm)
Assuming Ofgem have granted Urgency Workgroup meetings 1 - 10	07 May 2024 14 May 2024 16 May 2024 22 May 2024 28 May 2024 05 June 2024 11 June 2024 13 June 2024 18 June 2024 20 June 2024	Final Modification Report issued to Panel to check votes recorded correctly	13 September 2024 (by 4pm)
Workgroup Consultation (8 Business Days)	25 June 2024 – 05 July 2024	Final Modification Report issued to Ofgem	13 September 2024 (by 5pm)
Workgroup meeting 11 - 15	16 July 2024 18 July 2024 24 July 2024 30 July 2024 06 August 2024	Ofgem decision (11 Business Days)	30 September 2024
Workgroup report issued to Panel (2 Business Days)	13 August 2024	Implementation Date	01 January 2025
Special Panel sign off that Workgroup Report has met its Terms of Reference	16 August 2024		

Outline of Workgroup(s) Meeting Topics

WG meeting 1	• Set the scene, ToR, timeline, ways of working, context -why connections reform, what are the issues and solutions, what is and isn't scope, cross code impacts, who is impacted and how?
WG meeting 2	• Clarifying which projects go through the primary process. • Clarifying any deviations from primary process e.g. for certain technologies.
WG meeting 3 and WG meeting 4	• Introducing an annual application window and two formal gates, which are known as Gate 1 and Gate 2 (i.e. the primary process). • Setting out the process and criteria in relation to Application Windows and Gate 1, including introducing an offshore Letter of Authority as an application window entry requirement for offshore projects • Changing the offer and acceptance timescales to align with the primary process timescales (e.g. a move away from three months for licenced offers). • Introducing the concept of a Distribution Forecasted Transmission Capacity (DFTC) submission process for Distribution Network Operator's (DNOs) to forecast capacity on an anticipatory basis for Relevant Embedded Small Power Stations or Relevant Embedded Medium Power Stations in the Application Window. • Changing ESO's connection offer timescales to align with the primary process timescales (i.e. a move away from three months for making licenced offers). • Introducing the concept of a Connections Network Design Methodology (the content and any approvals of this to be covered outside the Code Modification process).

WG meetings 5 to 8	• Setting out the criteria for demonstrating Gate 2 has been achieved and setting out the obligations imposed once Gate 2 has been achieved.
	  • Incorporate necessary amendments ofM1 and M3 Queue Management Milestones in relation to projects which have met the Gate 2 criteria.
	  • For Letter of Authority:
	  • Setting out what are allowable amendments to red line boundaries once Gate 2 has been achieved; and
	  • The introduction of Duplication Checks on Gate 2 projects.
	• Setting out the general arrangements in relation to Gate 2
	• Changing the offer and acceptance timescales to align with the primary process timescales (e.g. a move away from three months for licenced offers).
	• Set out the process for how DNOs notify the ESO of Relevant Embedded Small Power Stations or Relevant Embedded Medium Power Stations which meet Gate 2 criteria.

WG meeting 9 and WG meeting 10	• Implementation approach • Identify which STCPs will change (STC only) • Identify which sections of legal text will change (Separate CUSC and STC) • Finalise WG Consultation (Separate CUSC and STC)
WG meeting 11	• Assess WG Consultation responses, discuss new points • Discuss potential alternatives and agree who develops these
WG meeting 12 and WG meeting 13	• Finalise WG Alternatives (CUSC 1st then reflect in STC) • Legal Text (Separate CUSC and STC)
WG meeting 14	• Finalise Legal Text (Separate CUSC and STC) • WG Alternative Vote (Separate CUSC and STC) • This is where we are re: Alternatives (Separate CUSC and STC)
WG meeting 15	• Workgroup Report (Separate CUSC and STC) • Workgroup Vote (Separate CUSC and STC)

CMP435 - Application of Gate 2 Criteria to existing contracted background

Context

The current connections process is not enabling the timely connection of projects to meet net zero.

There is a need to address the growing existing connections queue to ensure that the most viable projects can proceed

This proposal looks to apply Gate 2 criteria set out in the Implementation Connections Reform modification to the existing connections queue

The ESO will seek to raise this modification on an Urgent Basis to expedite the process, to enable implementation for 1st January 2025

What does the modification propose (1)?

- The size and rate of growth of the connections queue means that significant action is required as soon as possible to better manage the current queue. Not taking action to address the current queue will mean that new applications under our proposed Connections Reform model will initially be at the back of what could be ~800GW queue, with initial connection dates into the 2040s. The proposal seeks to address this with the application of Gate 2 criteria to the existing connections queue.

- Desired Outcome: To ensure that viable, ready to progress projects can receive earlier connection dates.

What does the modification propose (2)?

- The modification is seeking to apply the Gate 2 process and criteria to relevant parties with contracts providing for connection and use of system which are not connected or haven’t reached their Completion Date at the Go-Live Date.

- The ESO is recommending that aspects of the reformed connections process specifically Gate 2 and queue position allocation at Gate 2, need to be extended to the contracted background in order to deliver meaningful impact.

Scope/Solution

Element	Description
Extending the Gate 2 concept to apply to existing connection contracts	This would be from the planned Go-Live Date of 1 January 2025
Changes to the contractual arrangements for those existing contracted parties that have not met the Gate 2 criteria by the Go-Live Date of 1 January 2025	For example, disapplying User Commitment and Queue Management Milestones from projects which have not yet met the Gate 2 criteria, and also removing queue position, confirmed connection date and connection site
The transitional arrangements in relation to changes to the contractual arrangements	This is how and when evidence is provided in relation to Gate 2 in the Modification implementation period

Proposer's Justification vs Ofgem's Urgency Criteria

The Proposer recommends that this modification should be treated as an Urgent Modification proposal and be assessed by a Workgroup.

Ofgem's Urgency Criteria	Proposer's Justification
a) A significant commercial impact on parties, consumers or other stakeholder(s).	We consider that Urgent treatment of the "Application of Gate 2 Criteria to existing contracted background" Modification is also required in parallel in order to have combined significant impact from the go live date of 1 January 2025. Since publication of the Connections Action Plan in November 2023, the transmission and distribution connection queue has continued to grow relentlessly and, at the current rate of growth, the total connections queue is likely to exceed 800GW by the end of 2024. Without intervention, we expect this trend to continue with a forecast average increase of ~20GW for transmission being added every month beyond end 2024, which could lead to a 1000GW+ queue by the time necessary changes are in place if an urgent timeline is not followed. This modification is intended to ensure that viable, ready to progress projects can receive earlier connection dates, and more quickly remove speculative connection applications from the queue. This should address the current issue that ready to progress projects are held up behind stalled, slow to progress or speculative applications. The gated process, proposed by this change, supports this by prioritising readier and/or more viable projects as it avoids allocating capacity to projects that aren't ready to progress. (Please see the Proposal form for full justification)
b) A significant impact on the safety and security of the electricity and/or gas systems.	n/a
c) A party to be in breach of any relevant legal requirements	n/a

Timeline for CMP435 – Proposed Urgent Timeline - *Workgroup*

Milestone	Date	Milestone	Date
Modification presented to Panel	26 April 2024	Code Administrator Consultation (9 Business Days)	19 August 2024 to 02 September 2024
Workgroup Nominations (4 Business Days)	26 April 2024 to 02 May 2024	Draft Final Modification Report (DFMR) issued to Panel (3 Business Days)	09 September 2024
Ofgem grant Urgency	01 May 2024(5pm)	Panel undertake DFMR recommendation vote (Special Panel)	13 September 2024 (by 2pm)
Assuming Ofgem have granted Urgency Workgroup meetings 1 - 6	07 May 2024 15 May 2024 23 May 2024 29 May 2024 04 June 2024 12 June 2024	Final Modification Report issued to Panel to check votes recorded correctly	13 September 2024 (by 4pm)
Workgroup Consultation (8 Business Days)	25 June 2024 – 05 July 2024	Final Modification Report issued to Ofgem	13 September 2024 (by 5pm)
Workgroup meeting 7 - 11	16 July 2024 19 July 2024 23 July 2024 31 July 2024 06 August 2024	Ofgem decision (11 Business Days)	30 September 2024
Workgroup report issued to Panel (2 Business Days)	13 August 2024	Implementation Date	01 January 2025
Special Panel sign off that Workgroup Report has met its Terms of Reference	16 August 2024		

Outline of Workgroup(s) Meeting Topics

WG meeting 1	• Set the scene, ToR, timeline, ways of working, context -why connections reform, what are the issues and solutions, what is and isn't scope, cross code impacts, who is impacted and how?
WG meeting 2 and WG meeting 3	• Extending the Gate 2 concept to apply to existing connection contracts (from planned for Go-Live Date of 1 January 2025). • Changes to the contractual arrangements for those existing contracted parties that have not met the Gate 2 criteria by the Go-Live Date of 1 January 2025. • Implementation approach.
WG meeting 4 and WG meeting 5	• Identify which sections of legal text will change (Separate CUSC and STC) • Finalise WG Consultation (Separate CUSC and STC)
WG meeting 6	• Assess WG Consultation responses, discuss new points • Discuss potential alternatives and agree who develops these
WG meeting 7 and WG meeting 8	• Finalise WG Alternatives (CUSC 1st then reflect in STC) • Legal Text (Separate CUSC and STC)
WG meeting 9	• Finalise Legal Text (Separate CUSC and STC) • WG Alternative Vote (Separate CUSC and STC) • This is where we are re: Alternatives (Separate CUSC and STC)
WG meeting 10	• Workgroup Report (Separate CUSC and STC) • Workgroup Vote (Separate CUSC and STC)

CMP434 – the asks of Panel

- **AGREE** that this Modification has a clear defect and scope
- **AGREE** that this Modification should proceed to Workgroup
- **NOTE** that there appear not to be any impacts on the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the CUSC
- **VOTE** whether or not to recommend Urgency
- **AGREE** timetable for Urgency
- **AGREE** Workgroup Terms of Reference
- **NOTE** next steps:
  - Under CUSC Section 8.24.4, we will now consult the Authority as to whether this Modification is an Urgent CUSC Modification Proposal
    - Letter to be sent to Ofgem 29 April 2024
    - Ofgem approval of Urgent treatment sought by 5pm on 01 May 2024
    - 1st Workgroup to be held 07 May 2024

CMP435 – the asks of Panel

- **AGREE** that this Modification has a clear defect and scope
- **AGREE** that this Modification should proceed to Workgroup
- **NOTE** that there appear not to be any impacts on the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the CUSC
- **VOTE** whether or not to recommend Urgency
- **AGREE** timetable for Urgency
- **AGREE** Workgroup Terms of Reference
- **NOTE** next steps:
  - Under CUSC Section 8.24.4, we will now consult the Authority as to whether this Modification is an Urgent CUSC Modification Proposal
    - Letter to be sent to Ofgem 29 April 2024
    - Ofgem approval of Urgent treatment sought by 5pm on 01 May 2024
    - 1st Workgroup to be held 07 May 2024

Inflight Modification Updates

Milly Lewis, Code Administrator

CMP344: Clarification of Transmission Licensee revenue recovery and the treatment of revenue adjustments in the Charging Methodology Timeline Update

	3rd Code Administrator Consultation	DFMR issued to Panel	FMR issued to Ofgem	Implementation Date
Previous timeline	NA	19 January 2023	8 February 2023	1 April 2023
New timeline	30 July 2024	19 September 2024	09 October 2024	01 April 2025

Rationale: CMP344 was sent back by the Authority on the 12 February 2024 and presented to the February CUSC Panel. Panel agreed to send CMP344 back to the Workgroup for further work. The Timeline shows the expected dates of delivery for CMP344.

Workgroups Remaining: 2

Ask of Panel: Agree revised timeline

CMP402: Introduction of Anticipatory Investment (AI) principles within the User Commitment Arrangements Update

- The Proposer (ESO) is currently re-evaluating the solution that has been presented in the Workgroups, taking into consideration feedback received from Workgroup members and The Authority.

- Having further assessed the analysis, the ESO believe that there isn't a robust justification for the current proposed solution. Due to this, the ESO will develop a new solution and restart the Workgroups when the new solution is created.

CMP405: TNUoS Locational Demand Signals for Storage Timeline Update

	Workgroup Report issued to Panel	DFMR issued to Panel	FMR issued to Ofgem	Implementation Date
Previous timeline	26 July 2024	27 September 2024	07 October 2024	01 April 2026
New timeline	TBC	TBC	TBC	01 April 2026

Rationale: The Proposer felt that CMP405 needed to be paused in order to complete any further analysis required and to consider all the relevant developments happening to Storage across the industry.

Workgroups Remaining: To be considered once the Proposer is ready to restart the modification.

Ask of Panel: Agree revised timeline

CMP419: Generation Zoning Methodology Review Timeline Update

	Workgroup Report issued to Panel	DFMR issued to Panel	FMR issued to Ofgem	Implementation Date
Previous timeline	17 October 2024	05 December 2024	23 December 2024	01 April 2026
New timeline	05 December 2024	20 February 2025	11 March 2025	01 April 2026

Rationale: Additional Workgroups required prior to Workgroup Consultation following completion of analysis.

Workgroups Remaining: 7

Ask of Panel: Agree revised timeline

Panel Tracker

Milly Lewis, Code Administrator

Workgroup Report

CMP424: Amendments to Scaling Factors used for Year Round TNUoS Charges

Claire Goult (Modification Chair)

Solution and Workgroup Vote

Proposer's solution:

- Introduce a 10% minimum value for variable scaled factors in the Year Round Background
- 'Fixed' scaling factors can be adjusted for Year Round Background calculations if required to ensure variable factor remains above 10%
- When the variable scaling factor is increased to meet the 10% floor, all 'fixed' scaling factors are adjusted by a uniform amount so that the total of all scaled generation capacity is equal to ACS Peak Demand

Summary of Workgroup Vote:

- The Workgroup unanimously (five out of five) believed the Original solution better facilitated the Applicable Objectives than the Baseline.

Terms of Reference

The Workgroup conclude that they have met their Terms of Reference and the references can be located below:

Workgroup Term of Reference	Location in Workgroup Report
a) Consider EBR implications	Page 16 **Statement to confirm no EBR implications.**
b) Consider the appropriate scaling factor for each generation type	Page 10, 11 and 12 **Generation level data showing the adjusted scaling factor for each technology type, discussion, and conclusion.**
c) Consider potential impact on tariffs	Page 8 and 9 **Under the heading 'Tariff Impact Examples'.**

CMP424 – the asks of Panel

- **AGREE** that the Workgroup have met their Terms of Reference
- **AGREE** that this Modification can proceed to Code Administrator Consultation
- **NOTE** that this Modification does not impact the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the CUSC?
- **NOTE** the ongoing timeline

CMP424 Next Steps

Milestone	Date
Code Administrator Consultation (15 working days)	30 April 2024 to 5pm on 21 May 2024
Draft Final Modification Report issued to Panel	20 June 2024
Draft Final Modification Report presented to Panel	28 June 2024
Final Modification Report issued to Panel to check votes recorded correctly (5 working days)	01 July 2024
Submission of Final Modification Report to Ofgem	09 July 2024
Ofgem decision date	30 September 2024 due to being a change to the Charging Methodologies
Implementation Date	01 April 2025

Discussions on Prioritisation

- **AGREE where New Modifications that need Workgroups are placed in the prioritisation stack**

Standing Groups - *Updates on all standing groups relevant to CUSC panel e.g. potential for future governance changes or modifications*

~~Governance Standing Group – Garth Graham~~

TCMF – ESO Panel Member

European Updates - *Updates on all European developments relevant to CUSC panel e.g. potential for future governance changes or modifications*

European Code Development – Nadir Hafeez

Joint European Stakeholder Group – Garth Graham

Next meeting – 14 May 2024

Updates on other industry codes

21 March 2024 Grid Code Review Panel Papers and Headline Report
27 March 2024 STC Panel Papers and Headline Report
09 April 2024 SQSS Special Panel Papers and Headline Report

Relevant Interruptions Claim Report

(January, April, July, October)

01 January 2024 - 31 March 2024

Any Other Business

Activities ahead of the next Panel Meeting

Transmission Charging Methodologies Forum	09 May 2024
Modification Proposal Deadline for May Panel	16 May 2024
Papers Day	23 May 2024
Panel Meeting	31 May 2024 Faraday House

Close

Trisha McAuley OBE

Independent Chair, CUSC Panel