

Transmission Charging Methodologies Forum and CUSC Issues Standing Group

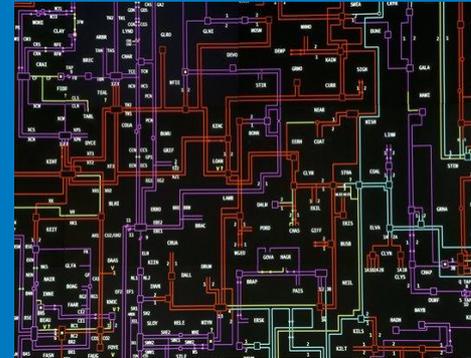


9th November 2016

Introduction, Welcome and Agenda

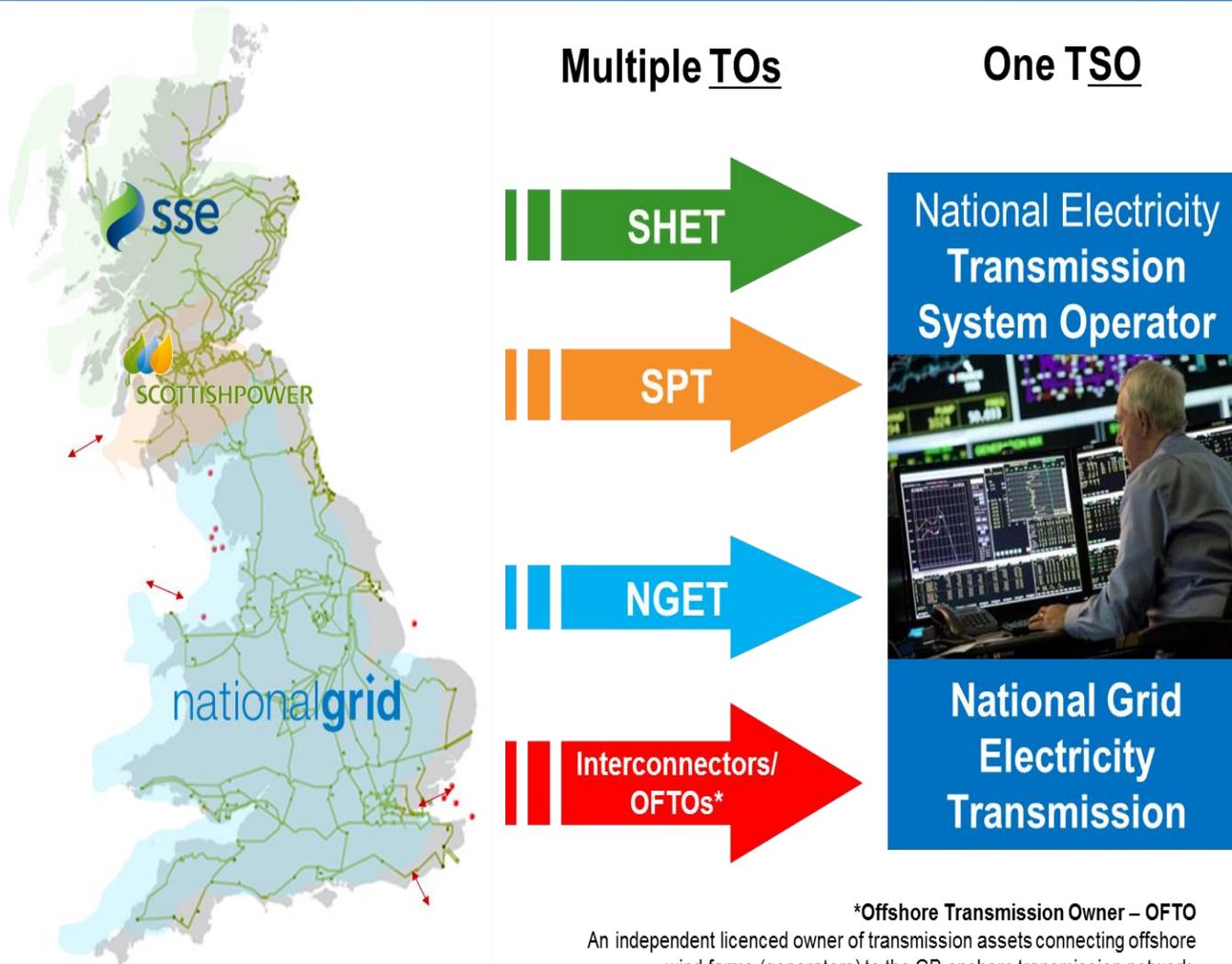
- **11:00** Introduction – Rob Marshall, National Grid
- **11:10** TNUoS Demand Charging High Level Overview – Damian Clough, National Grid
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Demand Charging High Level Overview



Damian Clough

Transmission Network & System Operator



Demand TNUoS Charges

- Reflect the incremental cost of facilitating demand on the transmission network.
- **Half-hourly (HH) metered demand:**
 - Zonal Demand Tariff (Locational + Residual, £/kW);
 - Charges based on average demand over the three “triad” periods.
 - Provides economic signal to avoid taking demand at peak.
 - Embedded Benefit paid to Licence Exemptible Dx connected generation i.e. <100MW
- **Non-half-hourly (NHH) metered demand:**
 - Zonal Energy Consumption Tariff (p/kWh);
 - Based on total annual consumption taken between 16:00-19:00
 - Provides gradual economic signal.

How are TNUoS Demand Charges calculated

- Demand TNUoS charges reflect the incremental cost of facilitating demand on the transmission network
- Generation and Demand Charges are both calculated within the same model (DCLF), at the same time, based on the exact same input data as highlighted later

CMP213 – Sharing

Peak Security Requirements



Year Round Requirements



- Investment traditionally peak driven.
- More recently increasing level of investment based upon cost-benefit



The Transport Model

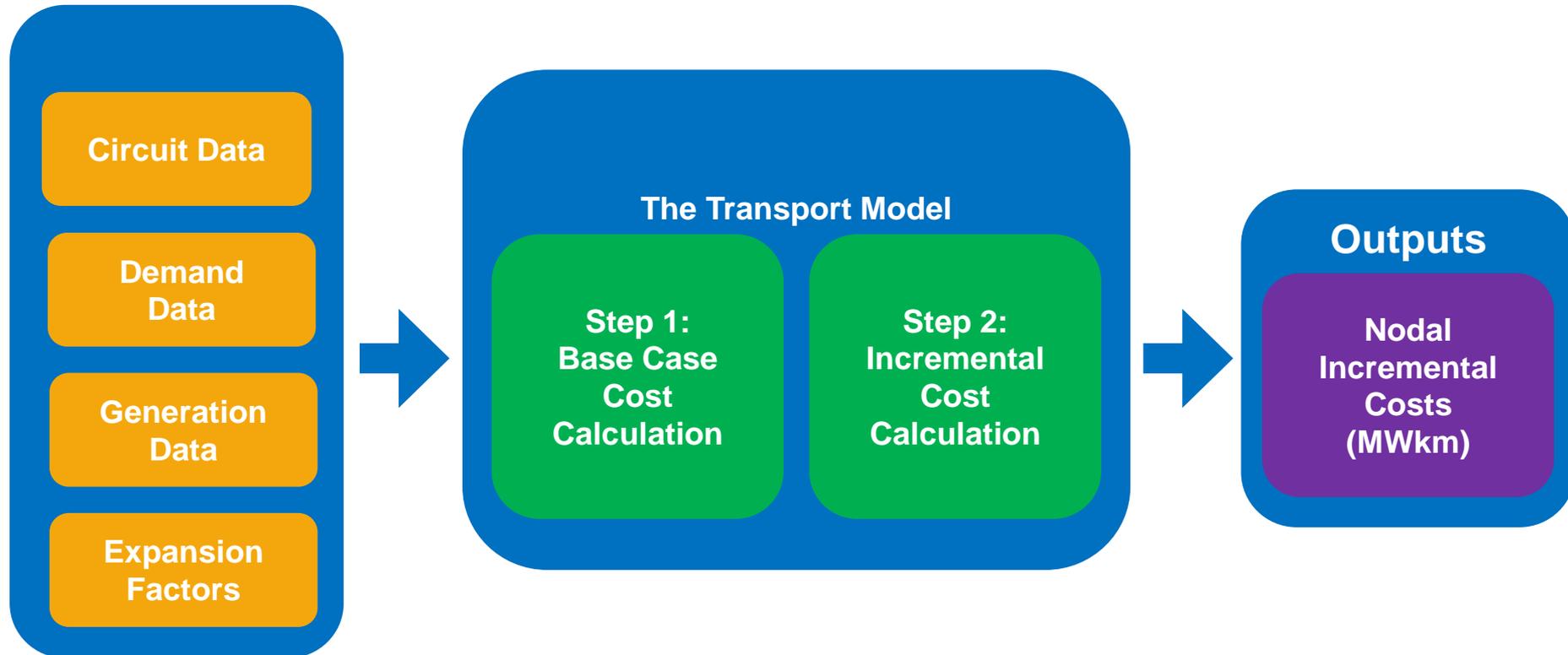
What does it do?

- Models power flows at system peak and year round which sets the two separate base cases
- Inject an additional MW at each node
- Look how power flows change compared to the base case
- Measure length of network that the additional MW flows on
- This length represents the investment required for additional generation connecting at this node
- At the same time this represents the investment required for additional demand connecting at this node (equal and opposite to Generation)

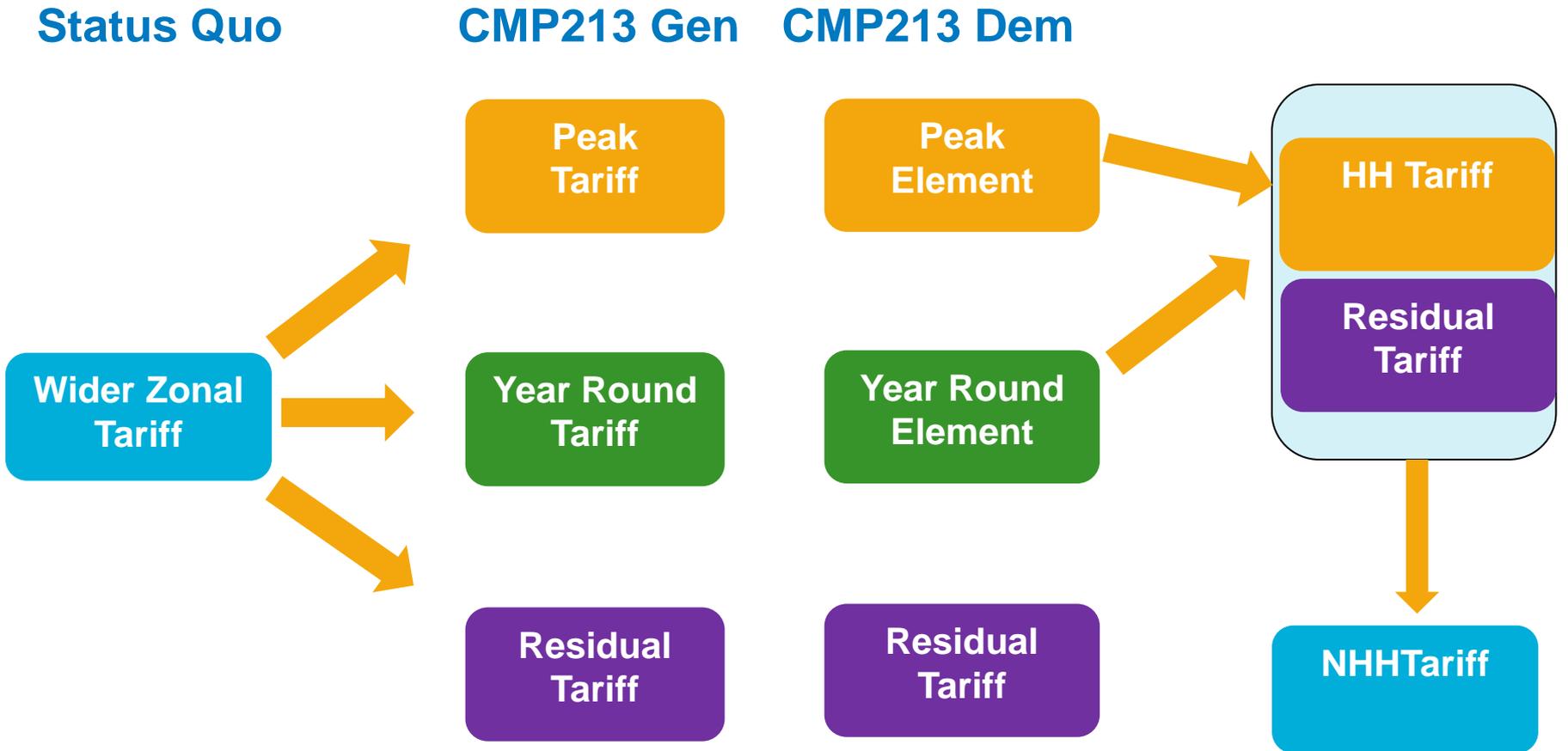


Length of network is the measure of investment cost

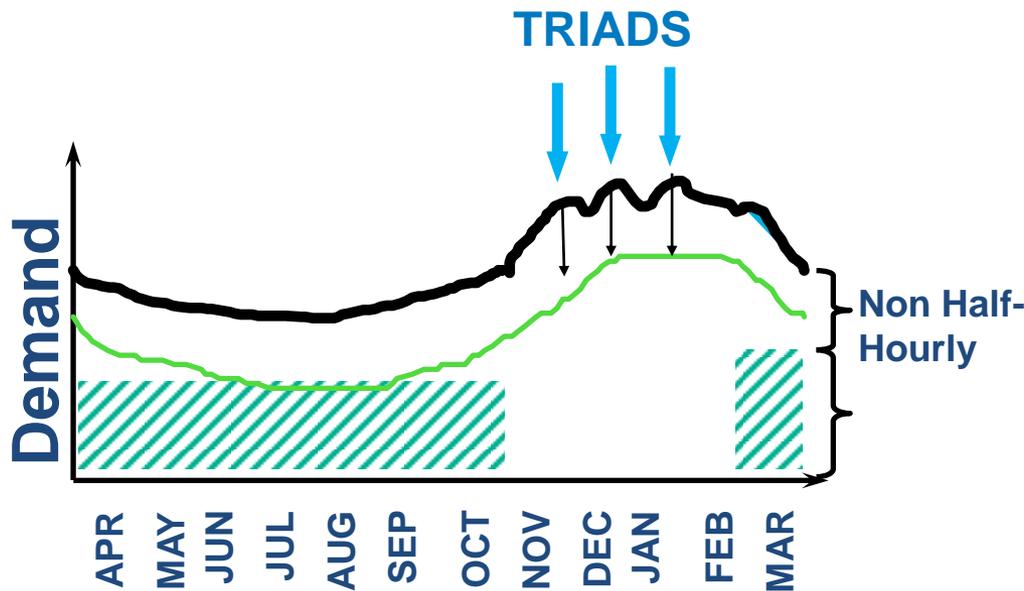
Transport Model Overview



CMP213 – Wider Tariff Structure



Half Hourly (HH) Demand Charges (£600m)

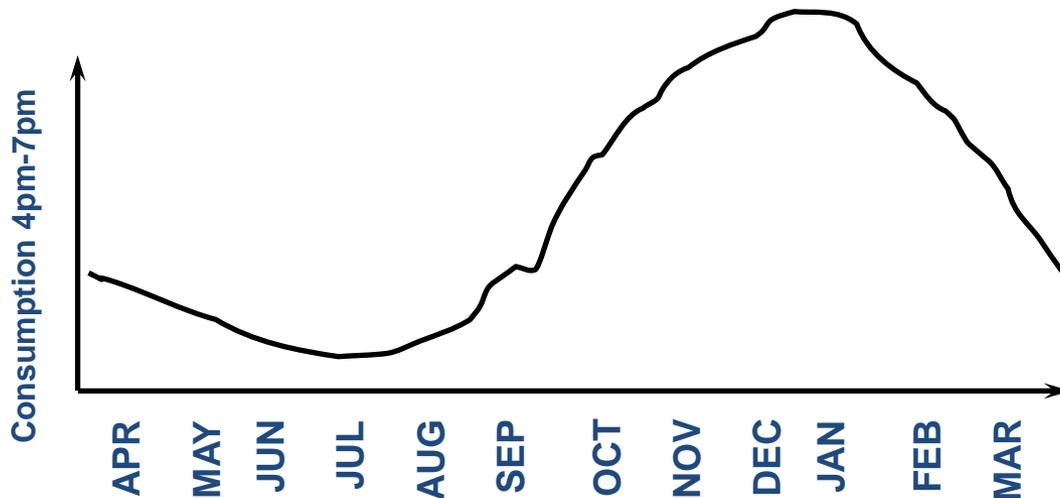


Of the 50GW peak around 20-30% is Half Hourly



Non Half Hourly (NHH) Energy Charges (£1650m)

Non-Half-Hourly Metered Demand → $\left[\text{Energy Consumption between 4pm- 7pm each day (kWh)} \right] \times \left[\text{Zonal Energy Tariff (p/kWh)} \right] / 100$



The overall £2250m not collected through HH is collected from NHH

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CMP271 – Improving the cost reflectivity of demand transmission charges

Bill Reed



Background

- > The current basis of demand transmission tariffs appears unsustainable.
 - By 2020/21 the demand residual rises to £72.03/kW
- > As more generation connects to the distribution network
 - the underlying cost reflectivity of generation and demand tariffs is called into question;
 - locational signals are inefficient;
 - constraint costs and risk of stranded assets increase; and
 - further distortions in the energy and capacity markets.

Context

- > CMP264 and CMP265 address the growing demand residual and capacity market effects but
 - Do not address the cost reflectivity of the locational demand tariff; and
 - Issues regarding the demand charging base for the relevant tariff components are out of scope; and
 - Do not consider the cost recovery arrangements for the residual component of the demand tariff
- > CMP271 is based on deriving cost reflective locational tariffs from the transmission investment drivers and efficient cost recovery that follows existing industry practice (net BSUoS-type charging).

The Proposal

- > **Locational tariffs:** based on two separate tariffs: one for peak and one for year round based on the demand tariffs
- > **Demand charging base:** peak charges relate to the peak drivers of investment (Capacity), year round relate to year round conditions (MWh);
- > **Revenue recovery:** Charge based on a year round demand tariff charged to suppliers for each MWh of consumption throughout the year (a net year round commodity tariff).
- > **Implementation:** no earlier than of 1st April 2020 or 3-years following a decision from the Authority to implement the modification proposal.

Evaluation against CUSC Objectives

- > CMP271 better meets the CUSC Charging Objectives:
 - **Objective (a):** efficient economic signals for Users when services are priced to reflect incremental costs.
 - **Objective (b):** better reflects investment costs in the transmission system.
 - **Objective (c):** aligns the transmission charging methodology with the Security Standard and better reflects the fact that the transmission licensees are required to plan and develop to meet these standards.
 - **Objective (e):** The proposal is based on existing charging principles and arrangements.

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ukpowerreserve
SUPPORTING A RENEWABLE FUTURE

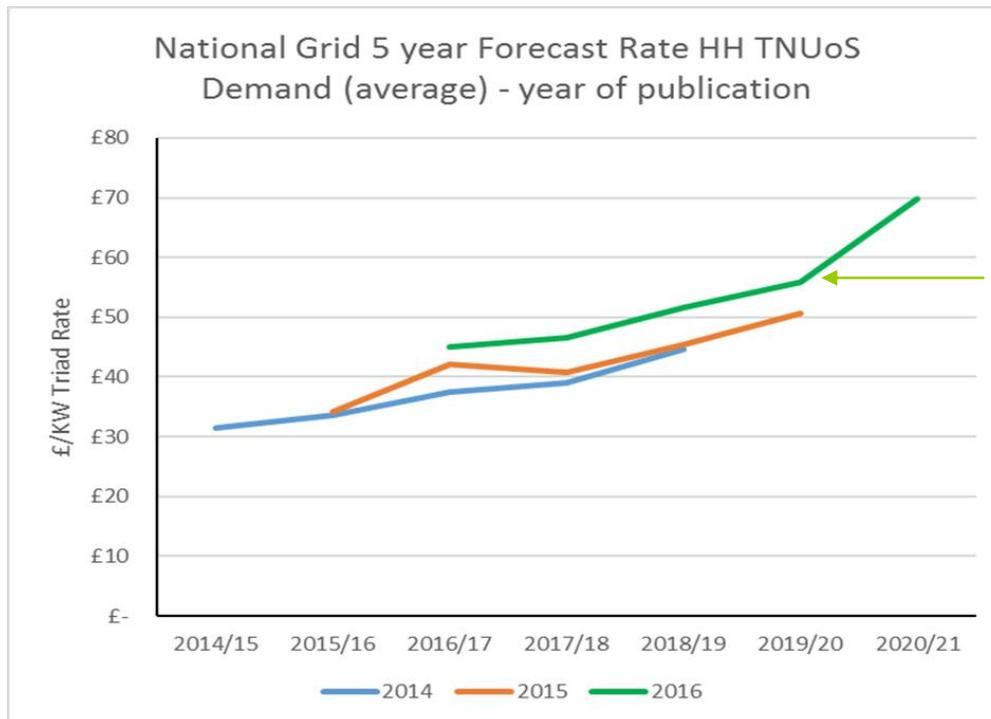


CMP274: Winter TNUoS Time of Use Tariff (TToUT) for Demand TNUoS

- Issue that CMP274 seeks to address
- How CMP274 addresses the issue
- Why CMP274 better meets the CUSC objectives

CMP274: Winter TNUoS Time of Use Tariff (TToUT) for Demand TNUoS

- Existing Triad methodology for allocating and charging demand users and embedded generation is creating distortions across the following areas;
 - Capacity Market Auctions
 - Contracts for Difference Auctions
 - Wholesale winter peak electricity market
- Demand Residual element of the Demand TNUoS methodology is increasing and compounding due to changing generation mix and increase in distributed generation;



Demand residual element increasing
Significantly in latest 5 year Demand TNUoS
Forecast as published by National Grid
Resulting in several intrinsically linked
distortions.

CMP274: Winter TNUoS Time of Use Tariff (TToUT) for Demand TNUoS

- Introduce Transmission Time of Use Tariff for allocation of the Demand TNUoS charges split between;
 - **Winter Peak Charge**
 - Locational Element = continued allocation over Triad
 - **Winter Round Charge**
 - Residual Element = allocation over new winter baseline measured on average position over the following;
 - Period = November – February, Monday – Saturday (excluding Sundays and Bank Holidays)
 - Window = 06:30 – 10:30 & 16:30 – 20:30

CMP274: Winter TNUoS Time of Use Tariff (TToUT) for Demand TNUoS

Significantly dilutes distortionary Transmission Network charging signal

- Changes the Demand Residual allocation/measurement of average capacity factor from current 3 SPs of Demand TNUoS to 1600 SPs
- Changes distortionary behaviour of DSR, onsite and distributed generation

Maintains appropriate Transmission Network locational signal

Locational element of Demand TNUoS still allocated/measured over Triad of 3 SPs based highest peaks identified after the winter period.

Introduces Transparency and protects vulnerable customers

Time of use tariff is easily understood and known ahead of time as opposed to current methodology that is known after the season ends.

Improves cost reflectivity

Introduces a larger baseline of demand users consumption to more accurately and fairly allocate larger element of demand TNUoS costs whilst mitigating potential distortionary impacts of PV distributed generation.

CMP274: Winter TNUoS Time of Use Tariff (TToUT) for Demand TNUoS

Significantly reduces Embedded Benefits

In order for DSR/embedded generation to hit 100% gross TNUoS Embedded Benefit means running approximately 800hrs

Significantly reduces Net Triad Benefit embedded generation/DSR due to;

High operational costs make running purely for Demand Residual embedded benefit uneconomic

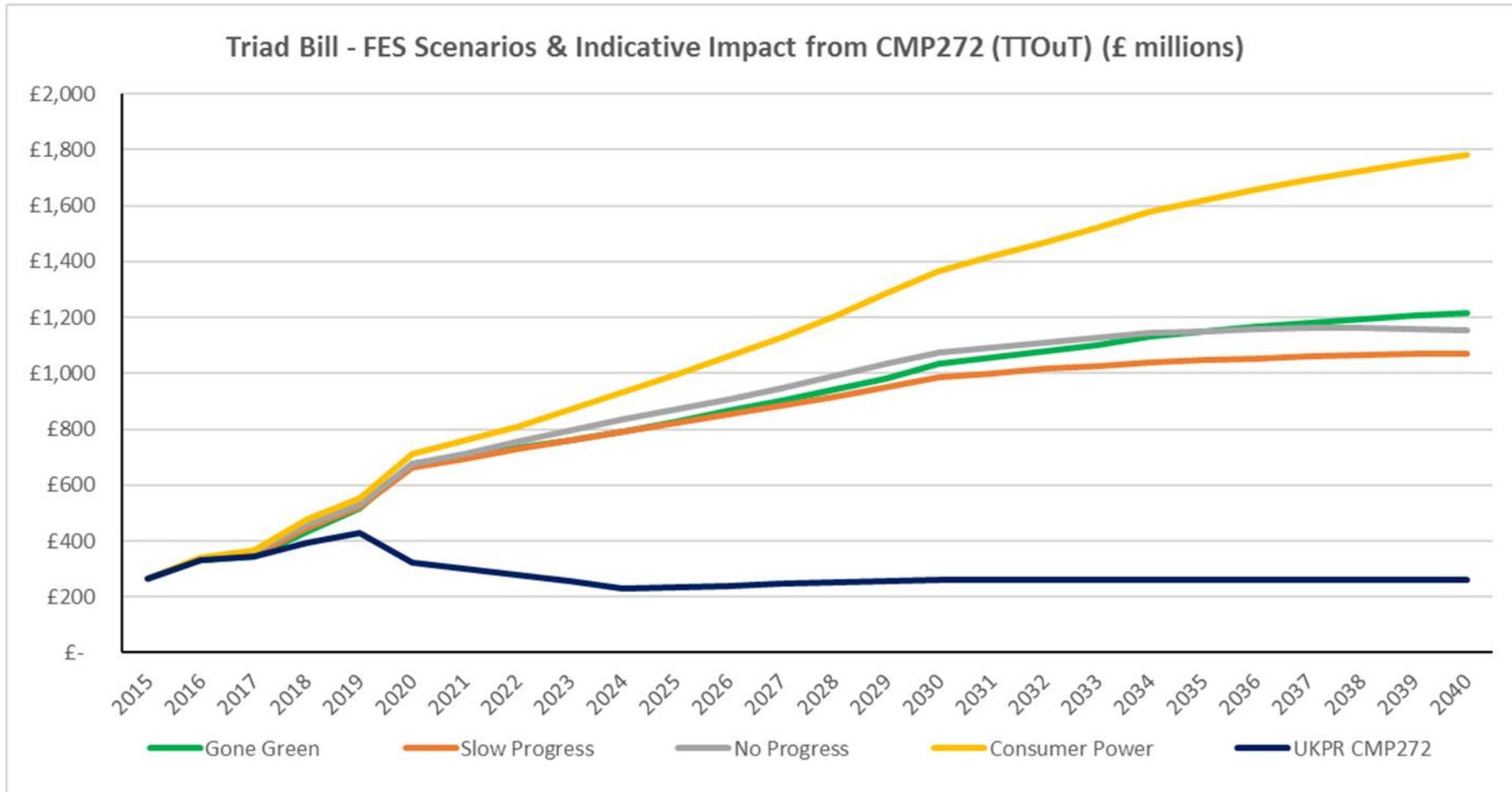
Environmental legislation caps large volumes of embedded generation and onsite generation annual run hours to 500 per annum (MCPD)

Majority of Embedded Generation and DSR does not have capacity to run for extended hours (Fuel or operational limitations).

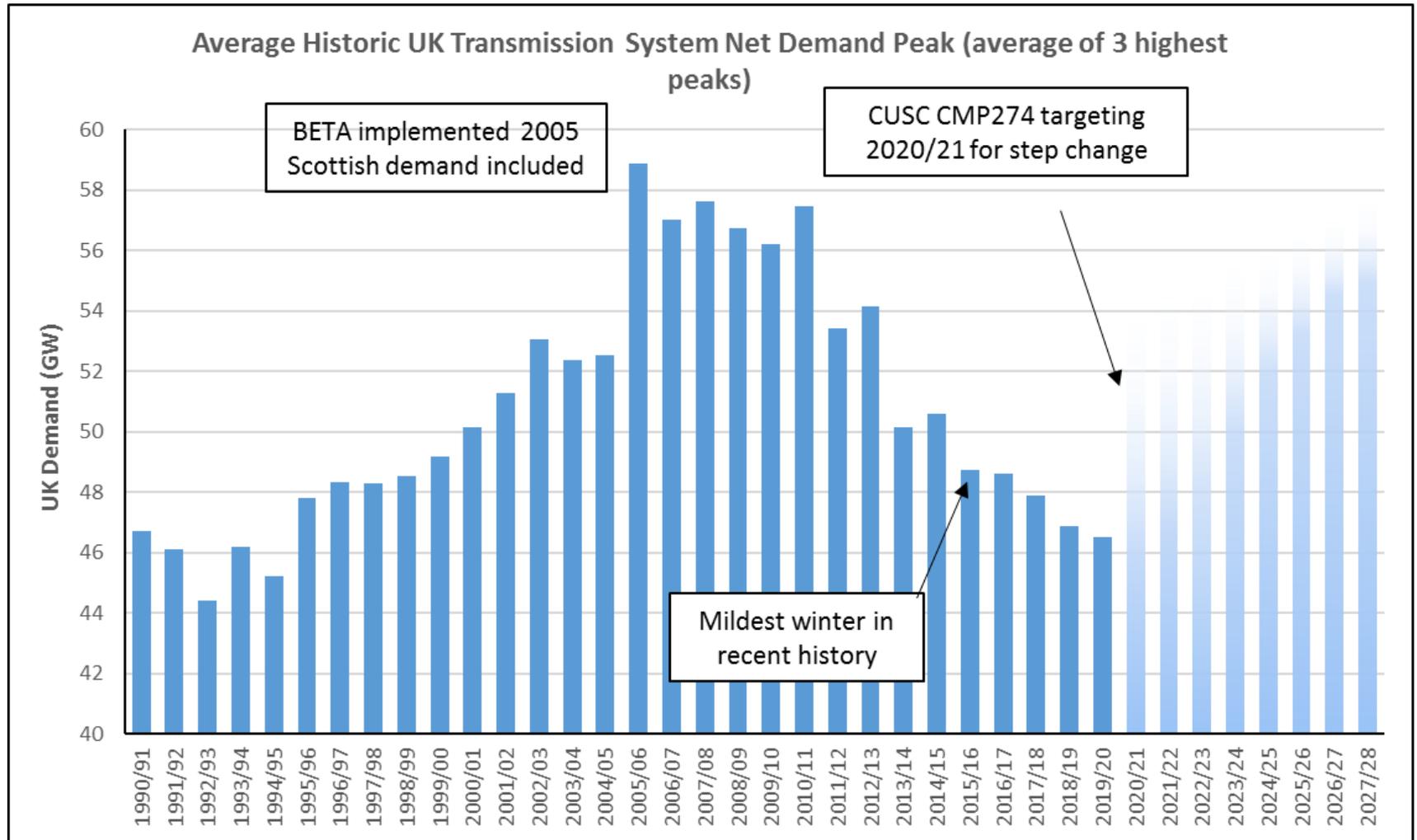
Results;

- Significantly reduces DSR/Embedded Generation running out of merit in wholesale market
- Significantly reduces net Triad benefit previously relied upon for newbuild capacity market distributed generation CMUs bidding into capacity market and contracts for difference auctions.

CMP274: Winter TNUoS Time of Use Tariff (TToUT) for Demand TNUoS



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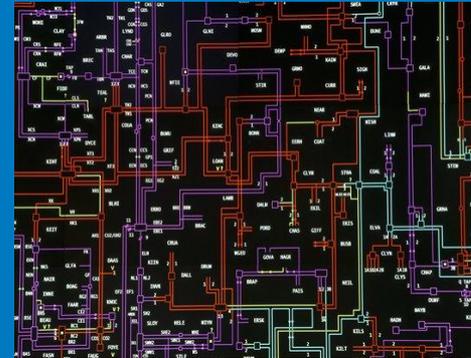
Better Meets CUSC Objectives:

	<p>(a) Facilitates competition in the generation and supply of electricity</p> <p>Significantly reduces Net TNUoS Embedded benefit for distributed generation;</p> <p>Significantly reduces out of merit running price signal</p> <p>Significantly reduces reliance on TNUoS Embedded Benefits for distributed generation bidding into the Capacity Market of Contracts for Difference Auctions.</p> <p>Levels the playing field between DSR and behind and in front of meter embedded generation assets</p>
	<p>(b) Cost Reflective</p> <p>Better reflection of demand users time of use to allocate Transmission Network charges in a fair and equitable way.</p> <p>Maintains an appropriate locational signal to reflect transmission investment costs</p>
	<p>(c) takes account of the developments in transmission licensees' transmission businesses*;</p> <p>Removes distortions and volatility which potential impact security of supply over the winter darkness peak through reducing incentives to avoid Demand TNUoS charges or embedded generation export out of merit.</p>
	<p>(e) Promoting efficiency in the implementation and administration of the CUSC arrangements</p> <p>Relatively easy to implement with minimal system changes and makes use of existing charging elements</p>

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Update on Transmission Charging Review



Juliette Richards

Charging Review Update

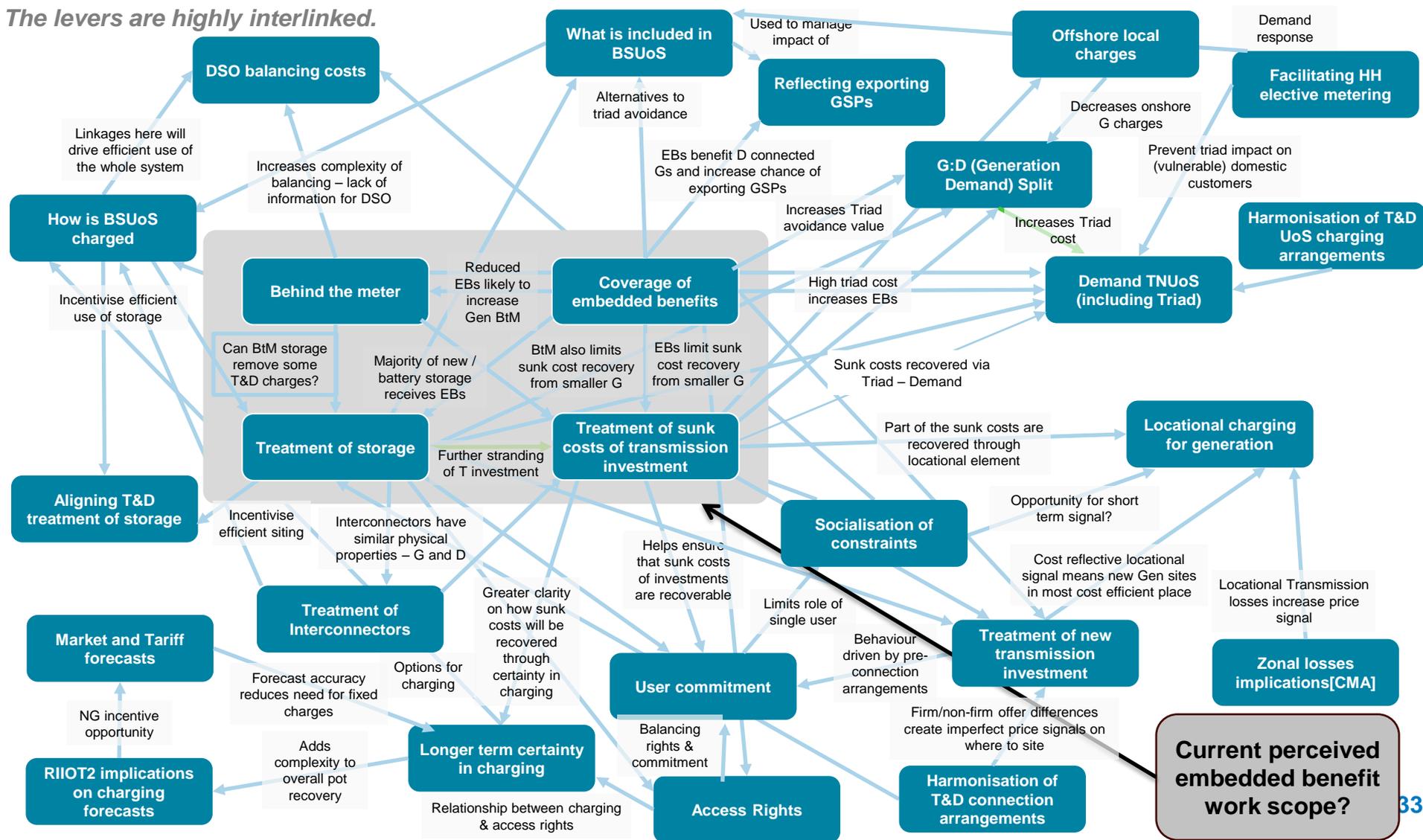
- How a review fits with Ofgem's Open letter on charging arrangements for embedded generators
- Progress of quick wins
- Next steps

Tie in with Ofgem work on embedded charging

- Ofgem open letter on charging arrangements for embedded generators
 - *Closed 23rd September 2016:* <https://www.ofgem.gov.uk/publications-and-updates/open-letter-charging-arrangements-embedded-generation>
- National Grid believes that Ofgem's work needs to be considered as part of a holistic charging review for the following reasons:
 - An **unprecedented amount of recent change** in the energy market has changed how users use and derive value from the network. This infers that current arrangements are not fit for purpose, and this is reflected in the increasing number of modifications being submitted by industry parties.
 - The **complexity and interdependency of issues** currently affecting transmission charging requires a holistic piece of work that can look across several Codes as appropriate. Attempting to address Embedded Benefits alone will have consequential impacts on a number of other items.
 - Our **stakeholder engagement** to date suggests that the majority of our customers and stakeholders share this view that a holistic review of transmission charging is necessary and desirable.
 - **Full response** available at http://www2.nationalgrid.com/UK/Industry-information/System-charges/Electricity-transmission/charging_review/

Scope modules are heavily interactive

The levers are highly interlinked.



Stakeholder forum approach and timeline

Immediate priority areas needing to be progressed in the short term

Already being progressed

These areas need to be considered in the next two-three years

Holistic Review

These areas need to be considered in a longer time horizon

Long term vision considerations

Long term stakeholder forum to route-map future

Quick Wins

Holistic Review
SCR type approach

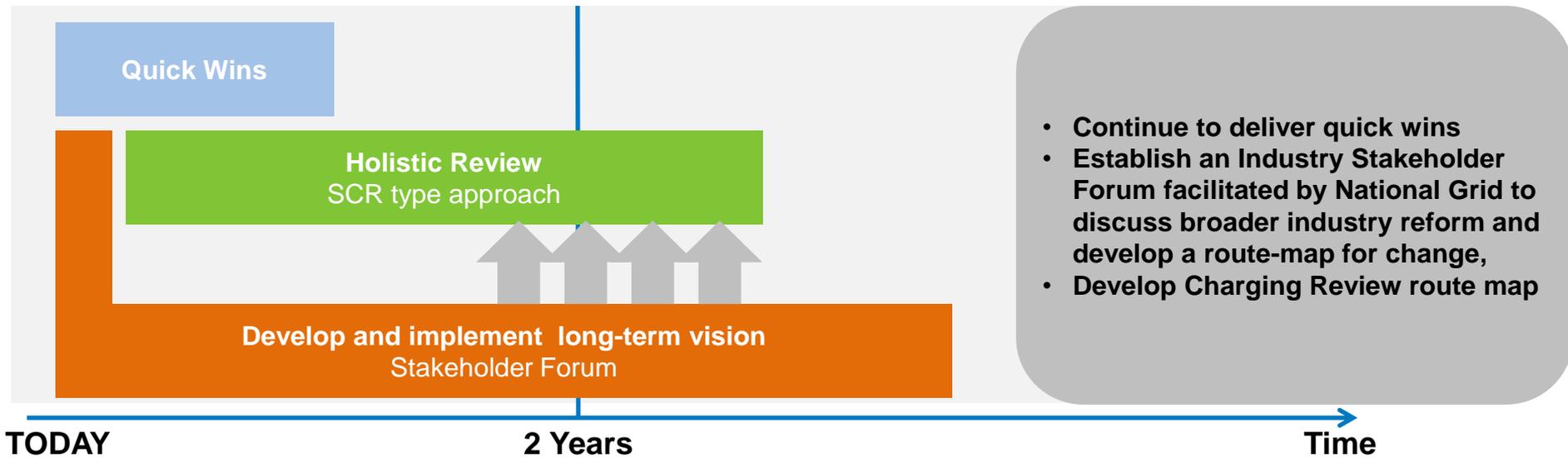
Develop and implement long-term vision
Stakeholder Forum

- Continue to deliver quick wins
- Establish an Industry Stakeholder Forum facilitated by National Grid to discuss broader industry reform and develop a route-map for change,
- Develop Charging Review route map

TODAY

2 Years

Time



The Drivers for Change: Quick wins



Market Developments

Provide additional analysis to Ofgem to allow them to make informed decisions on G/D split
CMA loss impact

CMA loss impact: Jan 17



Distributed Generation

Ensure TNUoS embedded benefit appropriate
(CUSC proposals CMP264/265)

End Nov 16



Smart & HH Metering

Ensure TNUoS charges are not a blocker for elective migration
(CUSC proposal CMP266)

Dec 16



Facilitating Flexibility

Creating appropriate arrangements for storage
(currently developing thoughts)

Update on storage treatment: Jan 17



Predictable Charges

Review current forecasting arrangements to ensure customers have appropriate information

To be explored further in 2017



Reflecting Sunk Costs

None identified

Next Steps

- We want to provide you with a fuller update on our work and intended next steps before the end of the year
- We are therefore in the process of arranging an additional TCMF in December
 - Likely date 7th December but will be confirmed as will venue

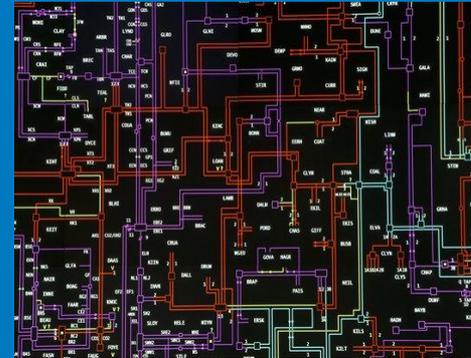
Lunch



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Ongoing charging & non-charging modification proposals



Heena Chauhan

New modification proposals

- **CMP271 ‘Improving the cost reflectivity of demand transmission charges’**
 - CMP271 aims to improve the cost reflectivity of demand transmission charges. It is proposed that the transmission charging methodology should include a Peak Security demand tariff levied at Triad, a Year Round demand tariff and revenue recovery levied on year round supplier demand.
 - Tabled by RWE at the CUSC Modifications Panel meeting on 30 September 2016.

- **CMP274 ‘Winter TNUoS Time of Use Tariff (TToUT) for Demand TNUoS’**
 - CMP274 aims to improve the cost reflectivity of demand transmission charges. It is proposed that the transmission charging methodology should include a Winter Weekday Time of use demand tariff which reflects the existing Demand Residual element of the existing methodology so that revenue recovery is levied over a longer period of assessment.
 - Tabled by UK Power Reserve at the Modifications Panel meeting on 30 September 2016.



Given the overlap in the issues to be discussed as part of these two modifications, the Workgroup meetings will be arranged on the same day and are being progressed following a normal timetable.

Ongoing modification proposals

■ **CMP250 ‘Stabilising BSUoS with at least a twelve month notice period’**

- CMP250 aims to eliminate BSUoS volatility and unpredictability by proposing to fix the value of BSUoS over the course of a season, with a notice period for fixing this value being at least 12 months ahead of the charging season.
- Proposal raised by Drax Power Ltd. Following Workgroup Consultation, proposal being further developed by Workgroup.

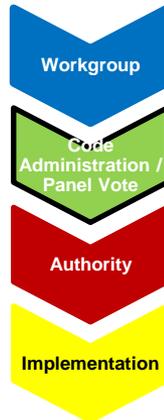
■ **CMP251 ‘Removing the error margin in the cap on total TNUoS recovered by generation and introducing a new charging element to TNUoS to ensure compliance with European Commission Regulation 838/2010’.**

- CMP251 seeks to ensure that there is no risk of non-compliance with European Regulation 838/2010 by removing the error margin introduced by CMP224 and by introducing a new charging element to the calculation of TNUoS.
- Proposal raised by British Gas and is with the Authority awaiting a decision.



Ongoing modification proposals

- **CMP261 ‘Ensuring the TNUoS paid by Generators in GB in Charging Year 2015/16 is in compliance with the €2.5/MWh annual average limit set in EU Regulation 838/2010 Part B (3)’.**
 - CMP261 aims to ensure that there is an ex post reconciliation of the TNUoS paid by GB generators during charging year 2015/16 which will take place in Spring 2016 with any amount in excess of the €2.5/MWh upper limit being paid back, via a negative generator residual levied on all GB generators who have paid TNUoS during the period 1st April 2015 to 31st March 2016 inclusive.
 - Raised by SSE. The Code Administrator consultation for this modification closes on 16 November 2016 and the CUSC Panel will vote at their meeting on 25 November 2016.
- **CMP262 ‘Removal of SBR/DSBR costs from BSUoS into a ‘Demand Security Charge’.**
 - CMP262 aims to create a new cost recovery mechanism, a ‘Demand Security Charge’ specifically for recovery of all SBR/DSBR costs, which is only levied on demand side Balancing Mechanism Units (BMUs). This is an urgent modification currently with Ofgem for decision.
 - This proposal was raised by VPI Immingham. The Authority have decided to reject this proposal.



Ongoing modification proposals

■ **CMP264 Embedded Generation Triad Avoidance Standstill**

- This proposal has been raised by Scottish Power and seeks to change the Transport and Tariff Model and billing arrangements to remove the netting of output from New Embedded Generators until Ofgem has completed its consideration of the current electricity transmission Charging Arrangements (and any review which ensues) and any resulting changes have been fully implemented.
- The Code Administrator Consultation for this modification and CMP265 closed on 4 November 2016 and the CUSC Panel will vote on this modification at a Special CUSC Panel on 23 November 2016.



■ **CMP265 'Gross charging of TNUoS for HH demand where embedded generation is in Capacity Market'**

- This proposal has been raised by EDF Energy and specifically seeks to address the issue that half hourly metered (HH) demand for TNUoS purposes is currently charged net of embedded generation. The modification is running in parallel to CMP265.



Ongoing modification proposals

- **CMP266: Removal of Demand TNUoS charging as a barrier to future elective Half Hourly settlement.**
 - This proposal seeks to prevent double charging of TNUoS for a meter electing to be HH settled, all demand within Measurement Class F & G will be charged under the TNUoS NHH methodology from April 2017 up until HH settlement is mandatory for all consumers.
 - Raised by National Grid. The Code Administrator Consultation for this modification closes on 15 November 2016 and the CUSC Panel will vote on the modification at the Panel meeting on 25 November 2016.

- **CMP267 ‘Defer the recovery of BSUoS costs, after they have exceeded £30m, arising from any Income Adjusting Events raised in a given charging year, over the subsequent two charging years’.**
 - CMP267 aims to defer unforeseen increase in BSUoS costs arising from an Income Adjusting Event (IAE) by two years. This proposal only applies to IAE’s which, in their total in any given charging year, have a combined effect on “raw BSUoS” of over £30m.
 - Raised by EDF Energy. This is an Urgent modification and the Code Administrator Consultation for this modification closed on 27 October 2016 and the CUSC Panel will vote at a Special Panel meeting on 15 November 2016.



Ongoing modification proposals

■ **CMP268 ‘Recognition of sharing by Conventional Carbon plant of Not-Shared Year-Round circuits’**

- CMP268 proposes to change the charging methodology to more appropriately recognise that the different types of “Conventional” generation do cause different transmission network investment costs, which should be reflected in the TNUoS charges that the different types of “Conventional” generation pays, ideally ahead of the December Capacity Auction.
- Raised by SSE. This is an urgent modification and the Code Administrator Consultation closed on 3 November 2016. The Panel will vote on this modification at the Special Panel meeting on 15 November 2016.



■ **CMP269 ‘Potential consequential changes to the CUSC as a result of CMP264’ and CMP270 ‘Potential consequential changes to the CUSC as a result of CMP265’.**

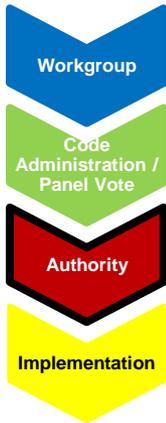
- These modifications aim to address a number of consequential changes required to non-charging sections of the CUSC to reflect the CMP264 and CMP265 Proposals respectively, or any alternative proposals agreed by the CMP264/CMP265 Workgroups. They are running to the same timetable as the CMP264/CMP265 proposals.



Ongoing / completed modifications (non- charging) nationalgrid

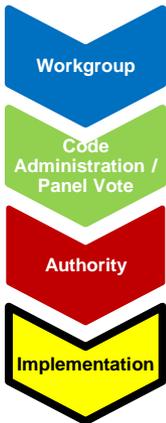
■ **CMP259: Clarification of a TEC decrease in a Mod application**

- This proposal seeks to enable a User to request both a TEC reduction and a subsequent TEC increase in the form of a single modification application to National Grid.
- Proposal was raised by RWE and is with the Authority awaiting a decision.

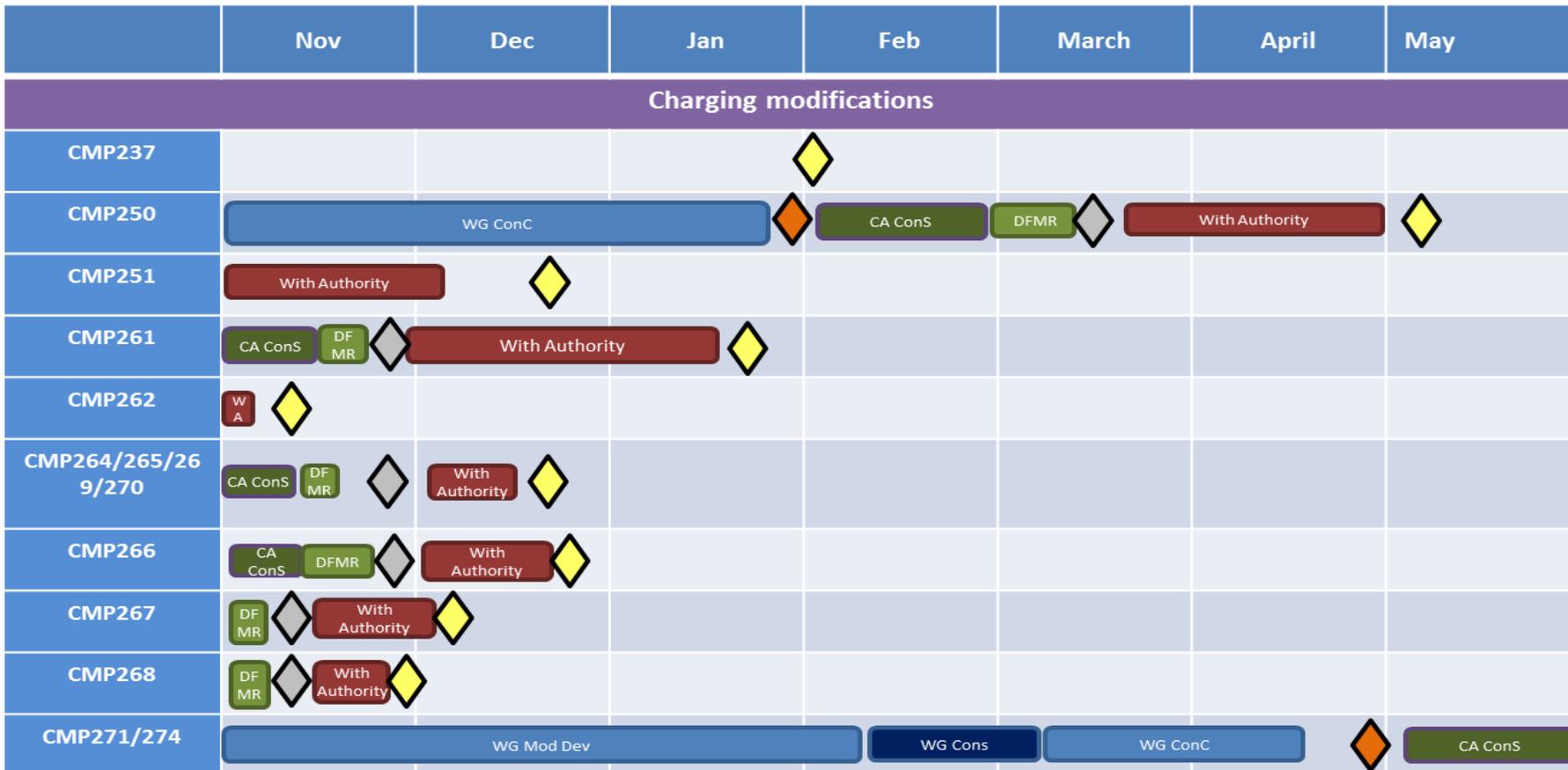


■ **CMP243 & CMP237: A fixed response energy payment option for all generating technologies / Response Energy Payment for Low Fuel Cost Generation**

- CMP243 was raised by Drax Power Ltd and seeks to allow all generators the option of choosing between the current methodology, or a fixed value of £0/MWh, for their Response Energy Payment (REP).
- CMP237 was raised by National Grid and seeks to set the Response Energy Payment at £0/MWh for those generators with low or negative energy costs.
- The Authority has decided on both of these modifications. CMP237 was accepted and CMP243 was rejected.



Current CUSC Charging Modifications



Modification Stages

Key:

WG - Workgroup

ConS – Consultation

WG ConC – Workgroup Conclusion

CA – Code Administrator Consultation

DFMR – Draft Final Modification Report



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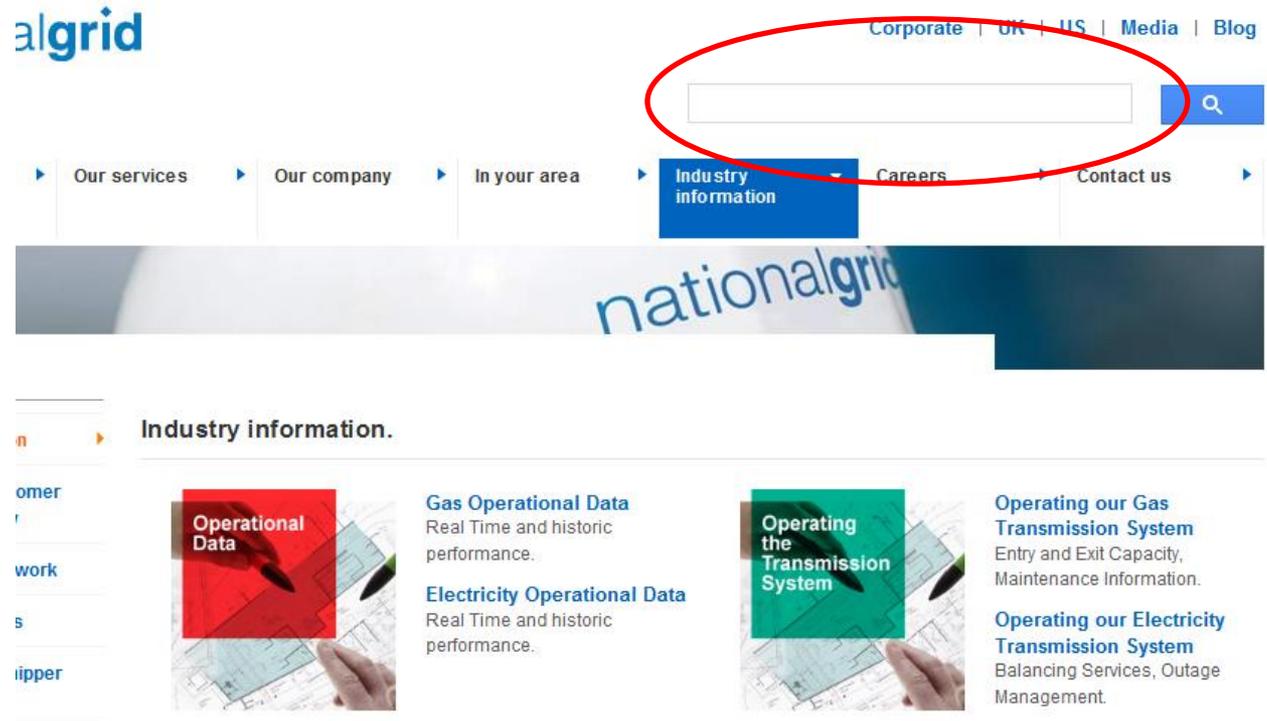
Improving the Website Search Facility



David Corby

Search Keywords

Charges
Tariff
TNUoS
Zones
Embedded
Triad



Forecast

AAHEDC

Methodology

Consultation

Charging Review

Code Modification

Transport Model

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Any other business



Future TCMF and CISG dates: 2016 & 2017

December

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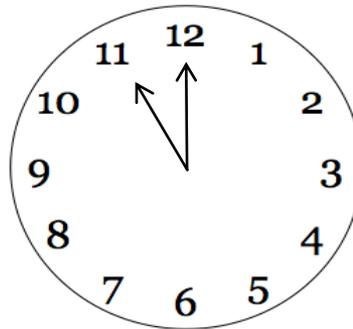
Wednesday

January

11

Wednesday

&



All 11 am starts unless otherwise notified

We value your feedback and comments

If you have any ***questions*** or would like to give us ***feedback*** or share ***ideas***, please email us at:

cusc.team@nationalgrid.com

Also, from time to time, we may ask you to participate in surveys to help us to improve our forum – *please look out for these requests*

Close

