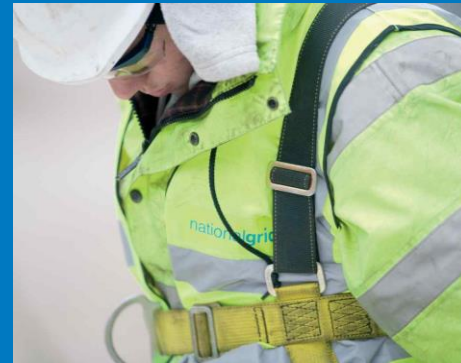


Gas Charging Review

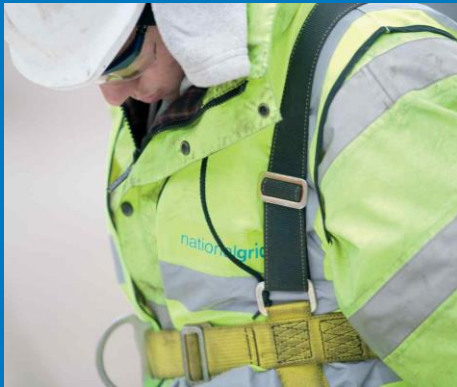


NTSCMF – 26 September 2017

Agenda

Area	Detail
EU Tariff Code Update	<ul style="list-style-type: none"> • EU Tariff Code relevant updates
Sub-workgroups	<ul style="list-style-type: none"> • Transmission Services Components • Output / summary of recent sub groups <ul style="list-style-type: none"> • FCC • Avoiding inefficient bypass of the NTS • Multipliers / Interruptible
Action 0501	<ul style="list-style-type: none"> • An example of how National Grid NTS forecasts 1:20 demand
Action 0707 (update)	<ul style="list-style-type: none"> • Influence on entry vs exit impact in the CWD model of existing contracts
Plan and change process	<ul style="list-style-type: none"> • Planning for NTSCMF meetings and sub groups and their focus • GB / EU process alignment
Charging Models	<ul style="list-style-type: none"> • Development of Transmission Services CWD spreadsheet
UNC Modification	<ul style="list-style-type: none"> • Any updates related to UNC 0621

European Update



EU Tariff Code – Current Outlook
26 September 2017

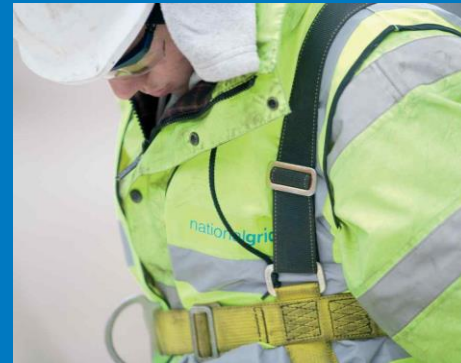
ENTSOG 2nd TAR NC Implementation Workshop

- **Second External TAR NC Implementation Workshop on 5 October.**
 - Same date as next Transmission WG!
- Venue is **BluePoint Conference Centre Brussels.**
- Details and registration:
 - <https://www.entsog.eu/events/second-implementation-workshop-for-the-network-code-on-harmonised-transmission-tariff-structures-for-gas-tar-nc>
 - Updated IDoc (Implementation Document) now finalised and will be available at workshop

Pre-Mod discussion: Combined ASEP Mod

- Proposed Mod on treatment of capacity at combined ASEPs
 - Mod will consider introduction of different classifications of capacity at ASEPs to allow different charging treatments
 - E.g. “storage capacity”, “abandoned capacity”
 - Mod contents dependent on National Grid proposals in UNC Mod 0621
- Detailed Mod proposal to be presented to Transmission WG on **5 November**

Gas Charging Review



Transmission Services Components

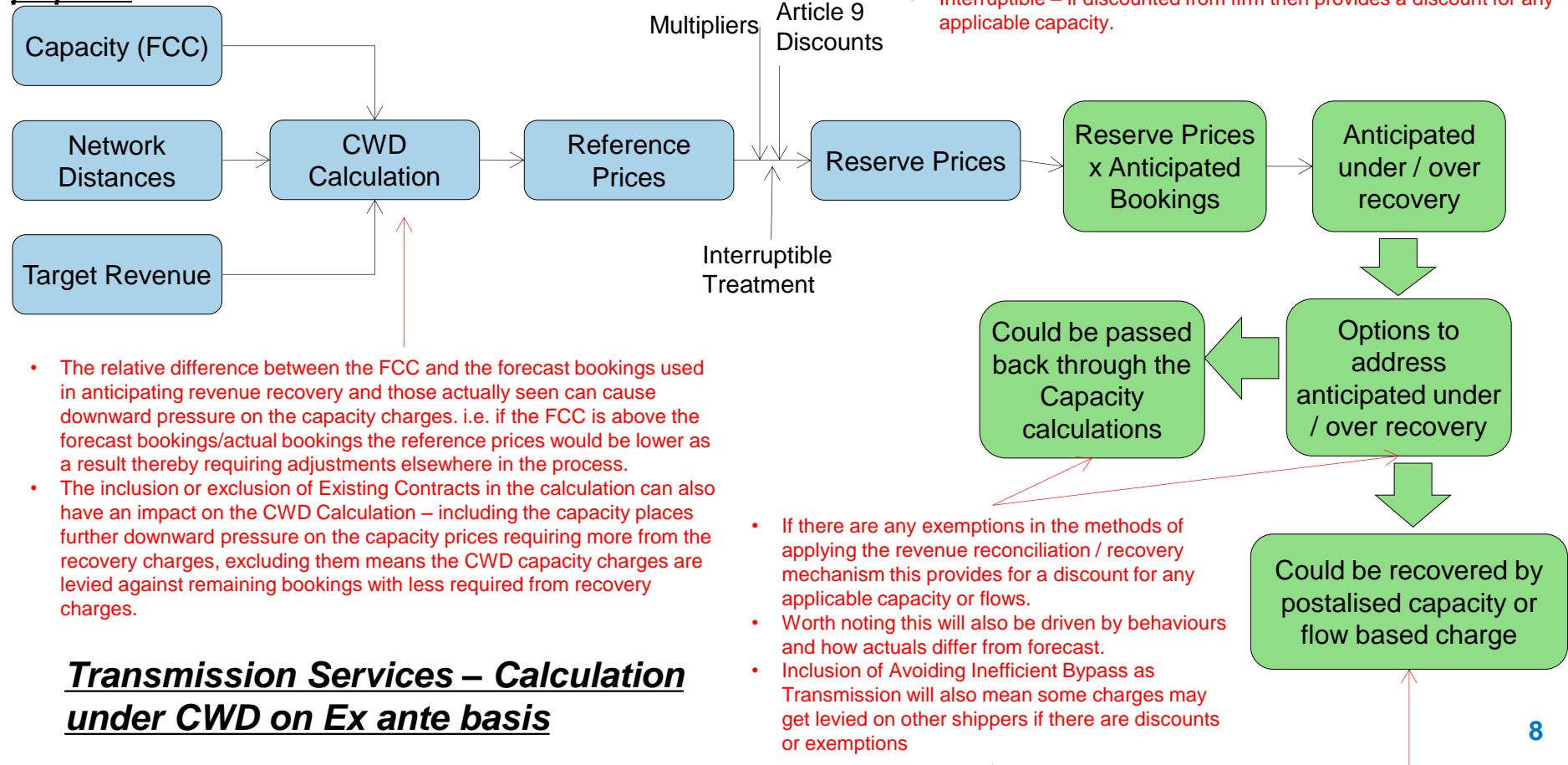
Gas Charging Review: Transmission Services Components

- At 5 September NTSCMF an illustration of how the Transmission Services Components may interact and drive influence on charges and how they may vary
- This is expanded on the following slide to show the key areas where this could happen
- Shared to help show how the individual topics work together as a package for Transmission Services using the CWD approach for calculating capacity charges

Gas Charging Review: Transmission Services components

This diagram shows where there could be adjustments that may result in discounts where any under recovery would need to be picked up in any adjustment mechanism.

N.B. this for illustration and discussion, this does not form a proposal.



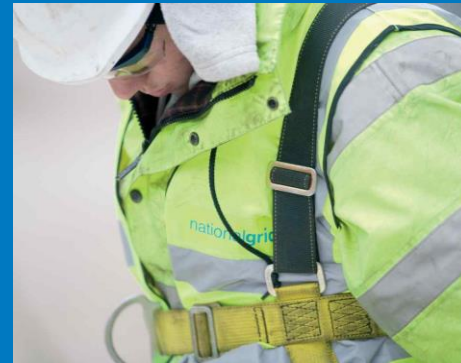
- Multipliers – if less than 1 provides for discounts to any applicable capacity. If equal to 1 then no separate treatment. If greater than 1 then results in an increase in prices for applicable capacity.
- Article 9 – for any discounts provided for under article 9, this provides a discount to the applicable capacity
- Interruptible – if discounted from firm then provides a discount for any applicable capacity.

- The relative difference between the FCC and the forecast bookings used in anticipating revenue recovery and those actually seen can cause downward pressure on the capacity charges. i.e. if the FCC is above the forecast bookings/actual bookings the reference prices would be lower as a result thereby requiring adjustments elsewhere in the process.
- The inclusion or exclusion of Existing Contracts in the calculation can also have an impact on the CWD Calculation – including the capacity places further downward pressure on the capacity prices requiring more from the recovery charges, excluding them means the CWD capacity charges are levied against remaining bookings with less required from recovery charges.

- If there are any exemptions in the methods of applying the revenue reconciliation / recovery mechanism this provides for a discount for any applicable capacity or flows.
- Worth noting this will also be driven by behaviours and how actuals differ from forecast.
- Inclusion of Avoiding Inefficient Bypass as Transmission will also mean some charges may get levied on other shippers if there are discounts or exemptions

Transmission Services – Calculation under CWD on Ex ante basis

Gas Charging Review



Output from sub workgroups

Gas Charging Review: Output from sub workgroup

- Three sub groups since 5 September NTSCMF
 - 8 Sept – FCC
 - 12 Sept – Avoiding inefficient bypass
 - 19 Sept – Multipliers / Interruptible
- All documentation and outputs, when updated from the meetings will be available on the NTSCMF pages as part of the meeting material:

<http://www.gasgovernance.co.uk/ntscmf> and

<http://www.gasgovernance.co.uk/ntscmf/subg>

- And will also be updating the summary documents in the document library

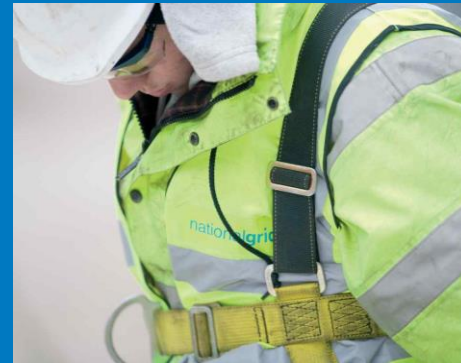
Gas Charging Review: Sub-group output summary

- From each of the sub-groups we have produced a set of summary slides which give an overview of what was discussed at the meeting
- These are presented in the relevant parts of the NTSCMF material

Gas Charging Review: Using the Sub Groups

- There was a sub group scheduled for 28 September. Propose this is cancelled.
- No further meetings have been scheduled
- All topics and discussions have been through sub groups at least twice and discussions have been documented and shared.
- Further discussions without updating UNC0621 may not add further value – once updated development / discussions should be through NTSCMF.
- Questions / comments can still be sent to National Grid, direct or to:
box.transmissioncapacityandcharging@nationalgrid.com

Gas Charging Review



GCR Sub Group 08.09.17
Forecasted Contracted Capacity

Gas Charging Review: Forecasted Contracted Capacity

Suggested questions/areas to address

- Status of discussions – review of where we are
- Development linked to other topics
- FCC options:
 - Obligated versus proportion of obligated
 - Additional discussion papers (Vermillion, Kinsale)
- Thinking of the overall package and FCC's influence combined with other components

Gas Charging Review: Forecasted Contracted Capacity (1)

Question	Some of the views expressed for each question
<p>Status of discussions – review of where we are</p>	<ul style="list-style-type: none"> • Reminder of the discussions to date and the rationale behind the two approaches currently being considered: Obligated or proportion of obligated • Recognising challenges of using either approach <ul style="list-style-type: none"> • How to inform a more accurate FCC given the change into a new set of charging arrangements and therefore unpredictable behaviours for capacity bookings • Addressing key concerns highlighted in the stakeholder objectives (improving predictability and stability and reducing volatility in charges) and also making a method as transparent as possible • Most recognise an aspiration to have FCC as close to expected bookings as possible however the high degree of unpredictability without data to see actual booking patterns is a challenge. • Some favour a transition towards this, starting with FCC as Obligated then changing over a short period, others prefer a reduced level for FCC linked to a method or set of assumptions
<p>Development linked to other topics</p>	<ul style="list-style-type: none"> • Most of the topics under discussion as part of the charging review are connected through the nature of the methodology in some way. • The higher the FCC, generally the lower the calculated capacity price. All else being equal this would require a higher revenue recovery charge. This is illustrated on the Transmission Services Components slide. • There are also links to multipliers, specific capacity discounts and interruptible as these all are tied to the reference prices produced through the CWD calculation and therefore driven by the level of FCC.

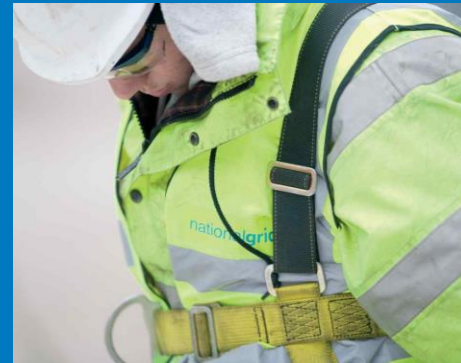
Gas Charging Review: Forecasted Contracted Capacity (2)

Question	Some of the views expressed for each question
FCC Options development	<ul style="list-style-type: none">• Can the option proposed provide a glide path beyond 2019, putting in place an approach that will be refined over the short term rather than immediately in 2019?• If the FCC is high then what about recovery mechanism at IP's. Should a revenue recovery charge be equal / proportionate between Non-IP and IPs.<ul style="list-style-type: none">• Whilst this is for the revenue recovery application, the size of the recovery charge will be linked to the difference between FCC and anticipated bookings.• Some believe there is merit in moving to a lower level of FCC to minimise the recovery charge• Others favour a higher FCC, updated in time with data based on behaviours, and that coming up with a credible % to reduce from obligated is a challenge• Given the change to new regime, reliance on an FCC without sufficient data may also drive volatility as expressed by some.• On the % of obligated option:<ul style="list-style-type: none">• Some expressed concerns it would not necessarily be more accurate than obligated when looking at individual points and may drive more volatility year to year. Others thought it would be more accurate and not as volatile.• Discussed Vermillion's proposal and Kinsale's points for a % of obligated. Some suggested more thought could be given to proposal given concerns. Vermillion to further their proposal with updated analysis as needed to support any proposals they are putting forward.• Discussion on the challenge of having as much capacity revenue as possible, linked to FCC, if know not accurate then could be made more accurate.

Gas Charging Review: Forecasted Contracted Capacity (3)

Discussion Point	Comments
Thinking of the overall package and FCC's influence combined with other components	<ul style="list-style-type: none">• As the individual topics are discussed, the overall methodology proposed will be required to be measured against the required objectives• Not just the specific topic in isolation.• The impact of the selection of FCC drives the need or level of emphasis on other aspects of the methodology as illustrated in the Transmission Services components slide.• Avoiding inefficient bypass, if there is any discount to other charges this requires any amount not collected to be recovered from other parties.• Multipliers / Interruptible – the application of a multiplier or % adjustment to firm for interruptible capacity will adjust the requirement for other charges, most likely through the revenue recovery charge. Therefore how the revenue recovery charge is calculated and applied has the potential to adjust charges for other parties.

Gas Charging Review



GCR Sub Group 12.09.17
Avoiding inefficient bypass of the NTS

Gas Charging Review:

Avoiding Inefficient bypass of the NTS

Suggested questions/areas to address

- Status of discussions – review of where we are
- Development linked to other topics
- Avoiding inefficient bypass of the NTS:
 - Influence of Costs / Load factor
 - Discount / alternative from Transmission / Non Transmission
 - Application to Entry / Exit
 - Use / changeability
- Thinking of the overall package and AIBoNTS's influence combined with other components

Gas Charging Review:

Avoiding inefficient bypass of the NTS

- Reminder of some general themes from the discussions to date:
 - A product to use NTS and discourage inefficient bypass considered beneficial to keep
 - Generally agreed that in some way it should reflect the cost of pipelines and be a form of discount against these investment costs
 - Preference for the product to be self limiting in design (e.g. through formula) rather than arbitrary parameters

Gas Charging Review: Avoiding Inefficient bypass of the NTS Optioneering

- To address the variability and how self limiting could be achieved, there are a number of areas to review:
 - Transmission and / or Non Transmission (for discount to or alternative from);
 - Charge as Capacity or Commodity;
 - How demand factors into the calculation (and links to any other charges);
 - Costs and how they are reviewed / updated (including expectations on transparency / ease of understanding)
- These can all be reviewed without fundamentally changing the formula structure if this is the preference but could change the level it is a discount / alternative to

Avoiding Inefficient Bypass Subgroup Options – Original OCC Formula



GCR Sub Group 12.09.17

Avoiding inefficient bypass of the NTS – analysis shared to the group with annotations

Original Costs

Revenue collected from users on OCC. OCC rates are adjusted using formula inputs from left hand side

Revenue collected where OCC is no longer economically viable (OCC is greater than commodity rate). *October 17 final charge setting figures are used*

This is the extra revenues collected from the original Commodity charging base to cover under recovery in commodity revenues due to OCC.
It is calculated by taking OCC out of October Final Charge Setting process and calculating the new revenue recovery from OCC. The revenue from OCC (column 1) and new Commodity revenue (column 2) is then subtracted from this to calculate the cross subsidisation figure.

	OCC Revenue	Commodity Revenue from old OCC Sites	Cross Subsidisation
Original			
Included			
25%			
TO+SO	£63,133,667	£50,185,583	£81,390,979
TO	£49,243,665	£111,213,263	£34,253,302
50%			
TO+SO	£66,981,834	£5,709,450	£122,018,946
TO	£50,719,745	£78,632,421	£65,358,064
75%			
TO+SO	£48,526,164	£0	£146,184,066
TO	£48,258,167	£59,603,193	£86,848,869
Removed			
25%			
TO+SO	£60,822,709	£42,403,173	£91,484,348
TO	£53,939,074	£98,445,655	£42,325,501
50%			
TO+SO	£60,926,062	£277,580	£133,506,589
TO	£56,168,081	£63,830,506	£74,711,643
75%			
TO+SO	£41,734,588	£0	£152,975,642
TO	£41,522,947	£59,595,450	£93,591,833

Original investment costs are used as inputs into OCC formula

Fixed costs inputs are either included or removed (referred to in table 4 and table 7 of GCD [calculator spreadsheet](#))

Load factors that are inputted into the calculation (referred to in table 8 of GCD calculator spreadsheet)

SO+TO = combined commodity charge (0.0956)
TO = TO combined commodity charge (0.0744)
October 17 final charge setting figures are used

Yellow row is the inputs with the lowest cross subsidisation within the costing scenario

Blue row is the current inputs used in the OCC formula

RPI Costs

Original investment costs are inflated using RPI on [ONS website](#)

	OCC Revenue	Commodity Revenue from old OCC Sites	Cross Subsidisation
RPI			
Included			
25%			
TO+SO	£44,760,775	£97,269,472	£52,679,982
TO	£28,480,343	£149,200,394	£17,029,493
50%			
TO+SO	£60,809,945	£42,055,314	£91,844,971
TO	£53,384,520	£98,445,655	£42,880,055
75%			
TO+SO	£68,073,515	£11,617,863	£115,018,852
TO	£41,514,202	£92,098,090	£61,097,939
Removed			
25%			
TO+SO	£38,709,029	£96,340,282	£59,660,919
TO	£37,919,801	£135,086,423	£21,704,006
50%			
TO+SO	£51,734,365	£42,031,775	£100,944,090
TO	£48,673,302	£95,093,128	£50,943,800
75%			
TO+SO	£67,693,877	£277,580	£126,738,773
TO	£57,347,893	£68,428,686	£68,933,651

Steel Index Costs

Original investment costs are inflated using Steel Index on [ONS website](#)

	OCC Revenue	Commodity Revenue from old OCC Sites	Cross Subsidisation
Steel Index			
Included			
25%			
TO+SO	£42,401,168	£116,601,066	£35,707,996
TO	£28,833,170	£161,765,484	£4,111,575
50%			
TO+SO	£64,985,861	£66,593,745	£63,130,624
TO	£36,391,900	£135,086,423	£23,231,907
75%			
TO+SO	£60,625,279	£45,877,767	£88,207,183
TO	£54,823,996	£100,196,582	£39,689,652
Removed			
25%			
TO+SO	£36,046,326	£116,601,066	£42,062,837
TO	£27,012,425	£159,111,847	£8,585,958
50%			
TO+SO	£71,220,529	£50,188,054	£73,301,646
TO	£31,518,224	£134,363,287	£28,828,718
75%			
TO+SO	£54,917,274	£42,031,775	£97,761,181
TO	£51,657,900	£95,093,128	£47,959,201

Gas Charging Review:

Avoiding Inefficient bypass of the NTS (1)

Question	Some of the views expressed for each question
<p>Status of discussions – review of where we are</p>	<ul style="list-style-type: none"> • Looking at opportunities to review the charge, without where possible fundamentally changing the current formula. • The status is such that the product could arguably be seen as no longer in keeping with the original objectives for the current design. • The influence is substantial with the amount not recovered from shorthaul users (due to the discounted commodity rate) therefore being recovered from non-shorthaul eligible flows. • Options to address this could be through updating costs, what any discount relates to (Transmission/Non Transmission), load factor – inputs to the shorthaul rate calc but that do not impact the structure of the formula – they will inform adjusted constants in the calculation. • Could use more arbitrary methods to make shorthaul more in keeping with it's objectives if other elements are not considered sufficient.
<p>Development linked to other topics</p>	<ul style="list-style-type: none"> • Most of the topics under discussion as part of the charging review are connected through the nature of the methodology in some way. • The higher the FCC, generally the lower the calculated capacity price. All else being equal this would require a higher revenue recovery charge. This is illustrated on the Transmission Services Components slide. • There are also links to multipliers, specific capacity discounts and interruptible as these all are tied to the reference prices produced through the CWD calculation and therefore driven by the level of FCC.

Gas Charging Review:

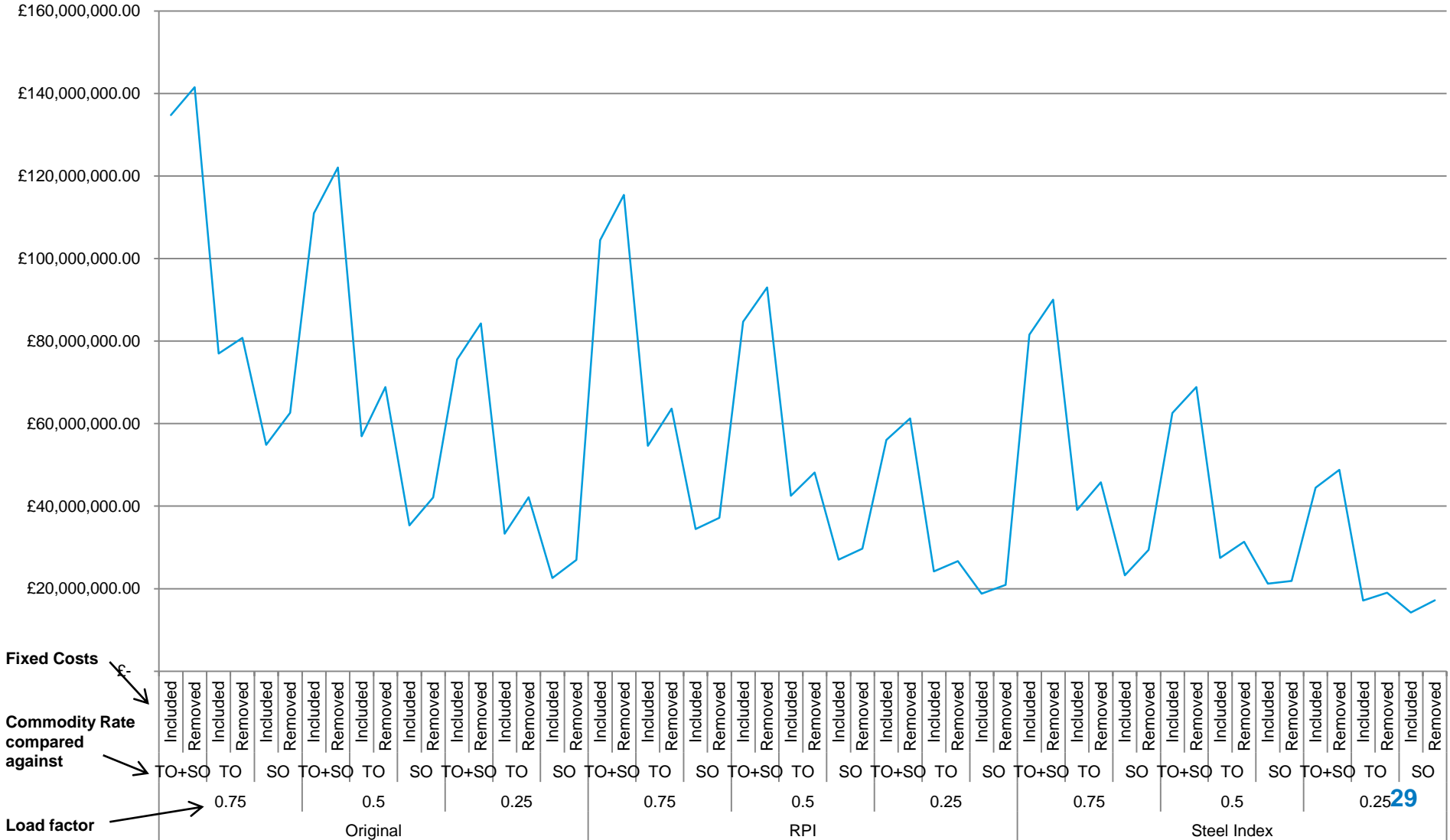
Avoiding Inefficient bypass of the NTS (2)

Question	Some of the views expressed for each question
<p>Avoiding inefficient bypass of the NTS:</p> <ul style="list-style-type: none">• Influence of Costs / Load factor• Discount / alternative from Transmission / Non Transmission• Application to Entry / Exit• Use / changeability	<ul style="list-style-type: none">• Kinsale energy shared some material for reference (as per NTSCMF 5th Sept)• National Grid showed some material that illustrated how adjusting costs, Transmission / Non Transmission related, load factor may impact the overall charging arrangements relative to avoiding inefficient bypass and other charges.• National Grid to further this analysis to include the recalculation of commodity rates to allow a more accurate demonstration of the impact of changing certain inputs to the calculations.• Given the size of the amount not collected from shorthaul users therefore collected from non shorthaul flows, whilst it is desirable to have a self limiting formula, discussed it may be necessary to apply some arbitrary elements to keep the product in line with it's objectives (i.e. short and only minimal influence on other charges).• Discussed whether avoiding inefficient bypass should have a duration of commitment given it should be linked to an investment decision• Some suggested it needs to take into account timing of decision making (e.g. for power stations)• Changeability of the product may be an element to review – more linked to the changeability of Entry points. How to link to investment decisions?• Some mentioned that there is a dependency for the proposals for avoiding inefficient bypass on the overall charging methodology to be proposed and what type of charges (Capacity / Commodity) will make up that methodology.• Some also preferred to avoid undue complexity in the overall methodology• For awareness highlighted EU regulation No 715/2009 article 13(1)<ul style="list-style-type: none">• “By 3 September 2011, the Member States shall ensure that, after a transitional period, network charges shall not be calculated on the basis of contract paths.”

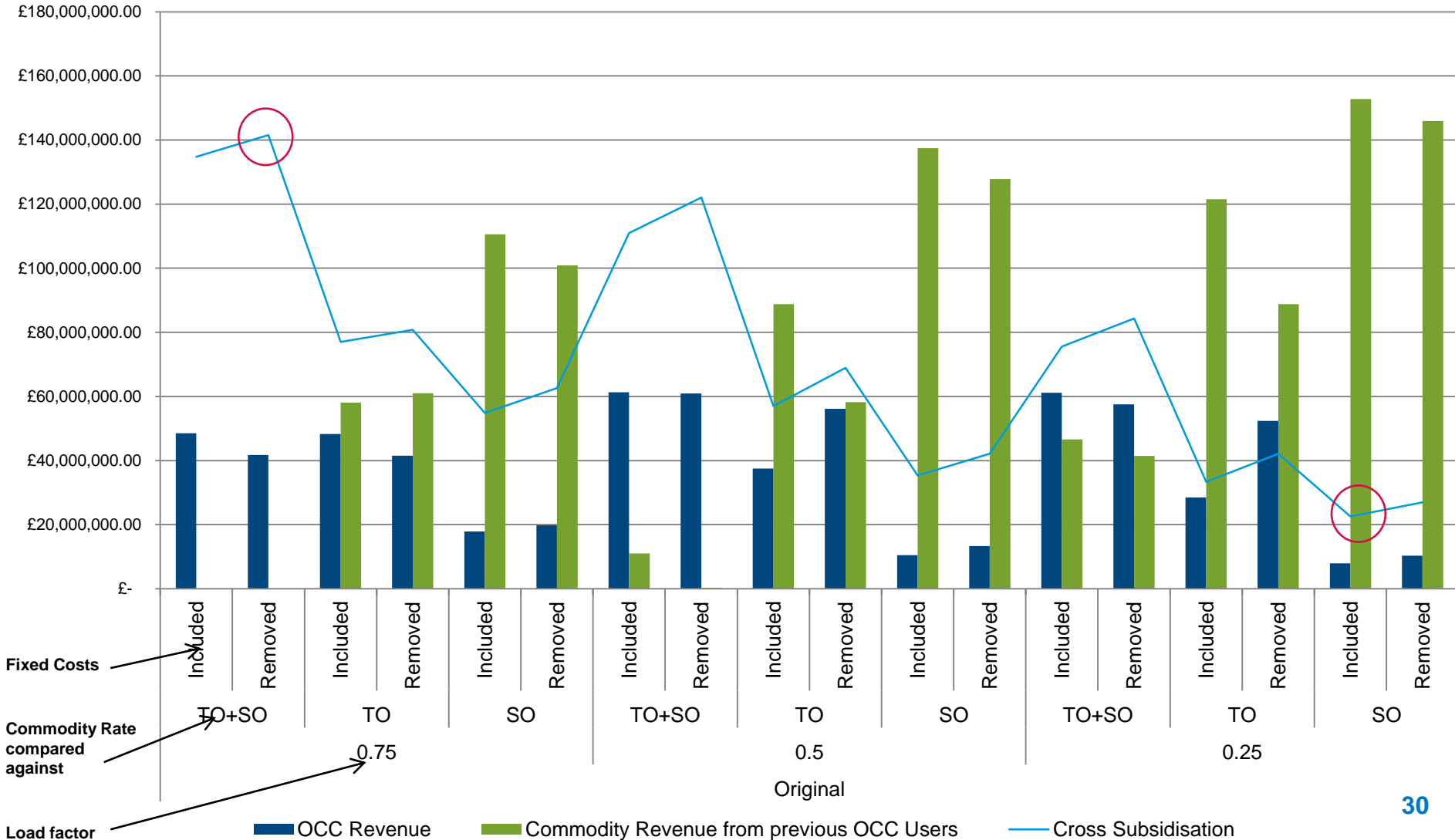
Gas Charging Review: Avoiding Inefficient bypass of the NTS further analysis

- Following the Sub group further analysis has been done on that presented to make more relevant. Previous analysis did not recalculate the TO and SO commodity rates.
- In the following slides this has been updated and a range of scenarios shared to illustrate the potential impacts using the current methodology as a base.

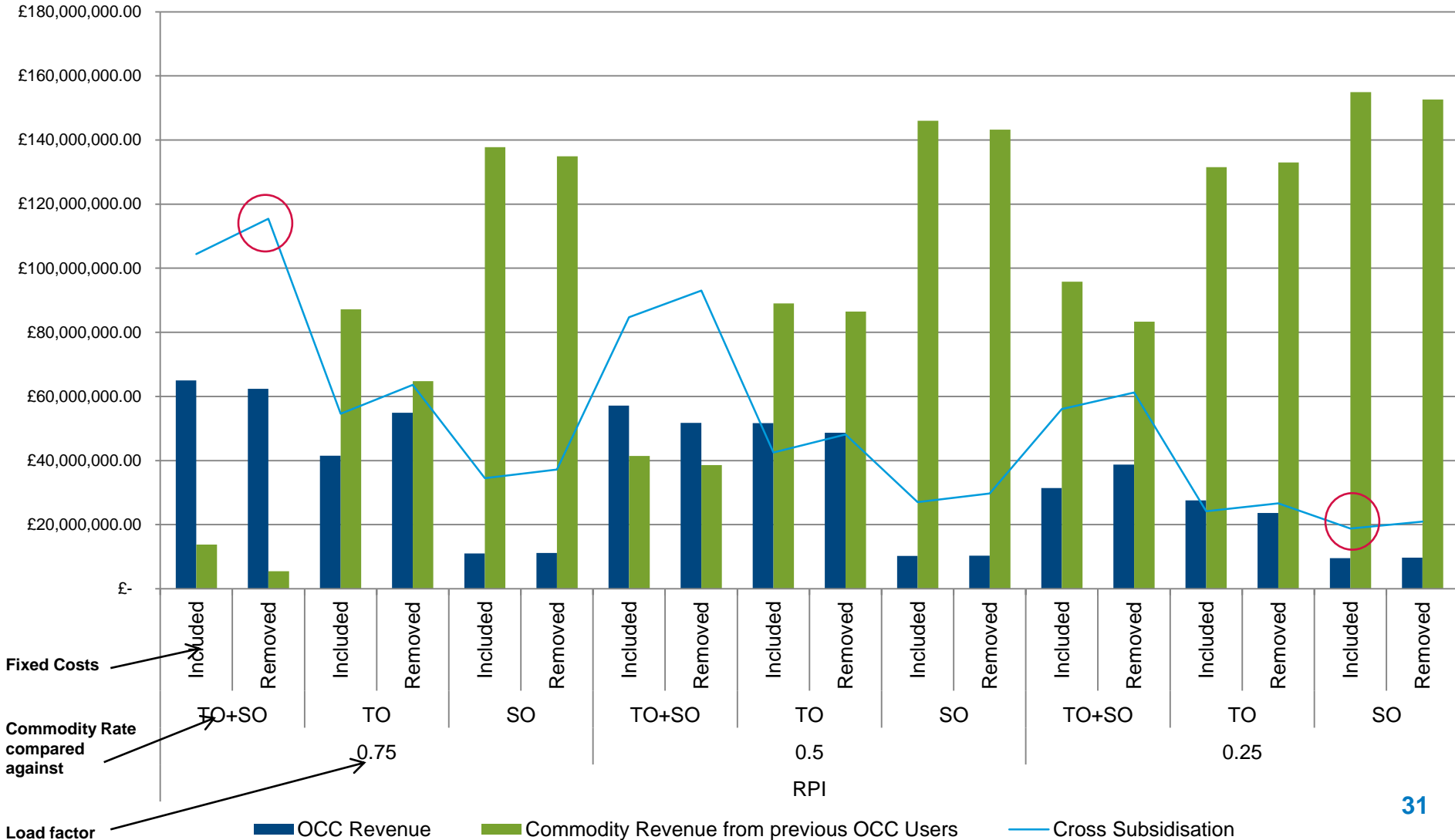
Cross Subsidisation across different input options



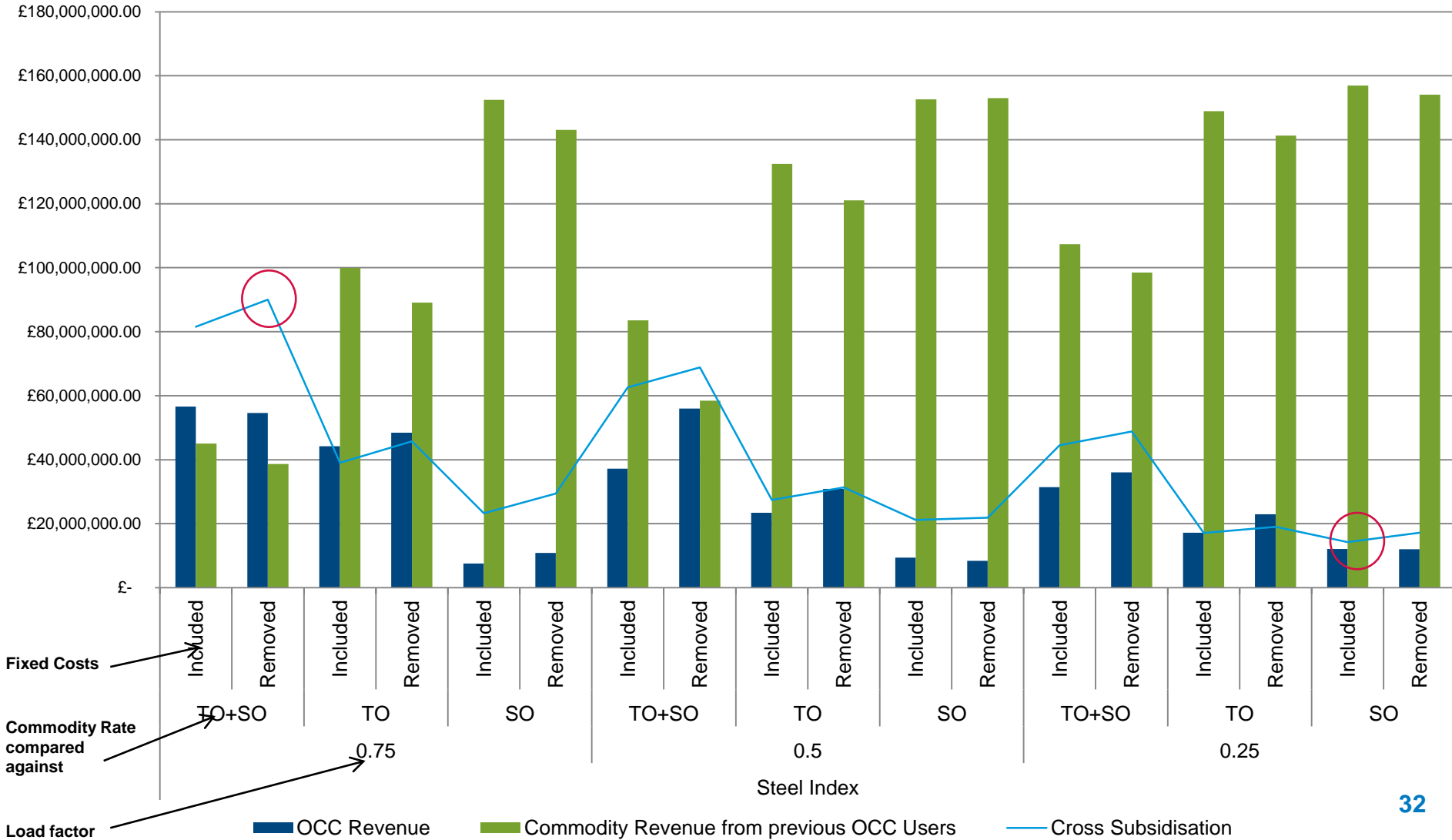
Original costs with different options



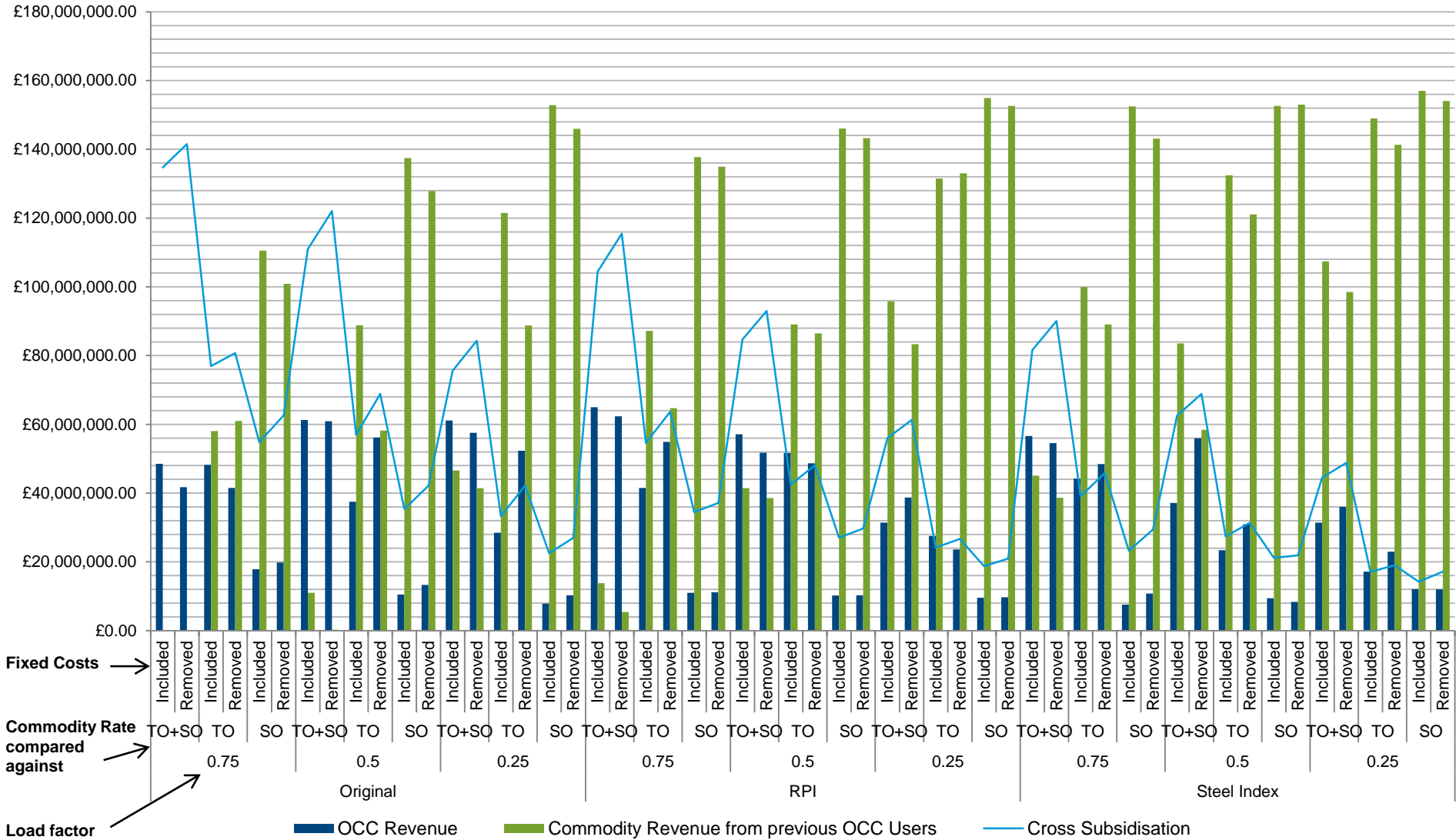
RPI costs with different options



Steel Index costs with different options



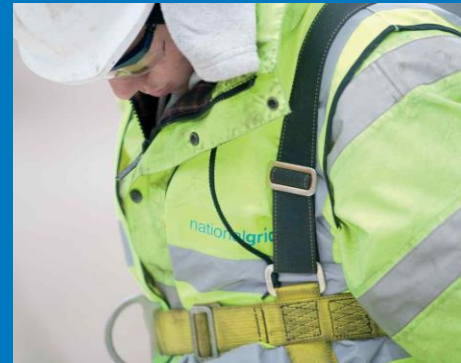
Appendix – Current formula (Cost, Load Factor, Fixed Cost, Tx/Non-Tx Optioneering)



Gas Charging Review: Avoiding Inefficient bypass of the NTS - development

- Aspects of the avoiding inefficient bypass (shorthaul) calculation that could be reviewed:
 - Transmission / Non Transmission application
 - Costs
 - Load Factor
 - Distance
 - Changeability
- All or some of these could be reviewed to update charge to be more in keeping with original principles (“short” and minimal influence on other charges)

Gas Charging Review



GCR Sub Group 19.09.17
Multipliers and Interruptible

Gas Charging Review: Multipliers and Interruptible

Suggested questions/areas to address

- Status of discussions – review of where we are
- Development linked to other topics
- Multipliers and Interruptible
 - Link between Multipliers and Interruptible
 - UNC changes to cater for change – linking to TAR NC requirements
 - Timing of final values
- Thinking of the overall package and Multipliers and Interruptible pricing combined with other components

Gas Charging Review: Multipliers – General themes

- General themes:
 - Any multiplier arrangement should recognise diverse range of NTS Users and the range of capacity products can suit varied requirements
 - Cross subsidy between long term and short term users is a concern for some
 - Entry and Exit can be treated separately re multipliers
 - Can have IP and Non IP treatment
- Question to address for both Entry and Exit:
 - What is an appropriate multiplier for Entry / Exit Capacity justified against the required objectives?

Gas Charging Review: Interruptible – General Themes

- Summary of general themes:
 - Any pricing arrangement should recognise diverse range of NTS Users and the range of capacity products can suit varied requirements, that will include risk appetite and consider how this is reflected for interruptible
 - Products and methodology to release interruptible / off peak capacity to remain as per current arrangements
 - Entry and Exit can be considered separately re interruptible pricing
 - Can have IP and Non IP treatment
- Questions to address for pricing for both Entry interruptible and off peak Exit:
 - What is an appropriate arrangement to price interruptible / off peak relative to firm capacity justified against the required objectives?
 - How to determine the probability of interruption is key. All observations, in addition to that outlined in the TAR NC, should be provided to the group / NG.

Gas Charging Review: Multipliers and Interruptible (1)

Question	Some of the views expressed for each question
<p>Status of discussions – review of where we are</p>	<p>Multipliers:</p> <ul style="list-style-type: none"> • Range of views for Multipliers being less than 1, set at 1 or greater than 1. • Challenge as to it being an arbitrary value and how to determine a number. <p>Interruptible</p> <ul style="list-style-type: none"> • Linked to firm – therefore closely linked to any multipliers applied. • Could reflect risk of taking interruptible • Probability of interruption, unlikely to be zero, but is considered to be low. This may not be the only feature to derive the % for interruptible (if reviewing TAR NC).
<p>Development linked to other topics</p>	<ul style="list-style-type: none"> • Most of the topics under discussion as part of the charging review are connected through the nature of the methodology in some way. • If a multiplier is less than 1 then, all else being equal this would require a higher revenue recovery charge. If the multiplier is greater than 1, all else being equal this would require a lower revenue recovery charge. There will be a behavioural dependency on actual capacity bookings. This is illustrated on the Transmission Services Components slide. • The same principles apply to interruptible based on its link to the applicable firm price. • There are also links to the FCC and specific capacity discounts as these all are tied to the reference prices produced through the CWD calculation. • Consultation process – briefly discussed the parallel approach for GB/EU and some questions / concerns from some in the group - agreed this would be better placed at NTSCMF.

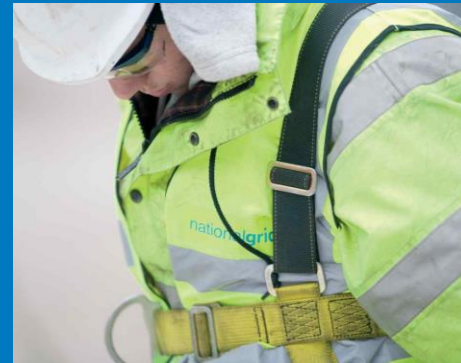
Gas Charging Review: Multipliers and Interruptible (2)

Question	Further discussions and views expressed for each question
<p>Multipliers and Interruptible</p> <ul style="list-style-type: none"> • Link between Multipliers and Interruptible • UNC changes to cater for change – linking to TAR NC requirements • Timing of final values 	<ul style="list-style-type: none"> • Some thought a multiplier of less than one increases cross subsidy. Prices close to or at zero result in flight into short term. How does this marry up with cost reflectivity. • Some expressed appetite not to change multipliers too much over time, not materially changing year to year. • Obligations re: consultations on multipliers / interruptible <ul style="list-style-type: none"> • Discussion on what should be in code – some felt could place level in code and not change from this. Could also have method in code (value outside – like prices in current methodology) and if not changing then could consult with no change as a proposal. • Discussion on link between FCC, anticipated bookings, revenue recovery and the potential impact of multipliers and interruptible. A driving influence will be the booking behaviours - may be unpredictable moving to a changed charging framework. • Some questioned if having multiplier of 1 incentivised long term bookings, access to markets is key in their view. • If one approach for all GB, thereby following TAR NC then there are two parts to the interruptible % - the probability and the “A” factor. NG reiterated that whilst interruptible probabilities are unlikely to be zero they would be low. The economic value part would require industry participation to develop.

Gas Charging Review: Multipliers and Interruptible (3)

Question	Further discussions and views expressed for each question
<p>Multipliers and Interruptible</p> <ul style="list-style-type: none"> • Link between Multipliers and Interruptible • UNC changes to cater for change – linking to TAR NC requirements • Timing of final values 	<ul style="list-style-type: none"> • On timing – when is it best for the values to be known for the applicable charging year? Discussed Entry and Exit. Did discuss Entry and QSEC but as QSEC is 18m out this is likely early. In general some thought best to have it as near to the applicable year in question, and in advance of the July window for Exit and the Annual yearly auction for entry. E.g. this would mean around May/June for 2019. • For any change to multipliers and interruptible is it more appropriate to consult on values nearer to the tariff year in question? <ul style="list-style-type: none"> • Some views expressed for nearer the time and also that this could be an additional consultation beyond UNC 0621 • To consider what UNC0621 should contain re: Multipliers and Interruptible • Could contain a method /approach / default value to be updated and decided upon nearer the time? • Consider TAR NC compliance of any options.

Gas Charging Review



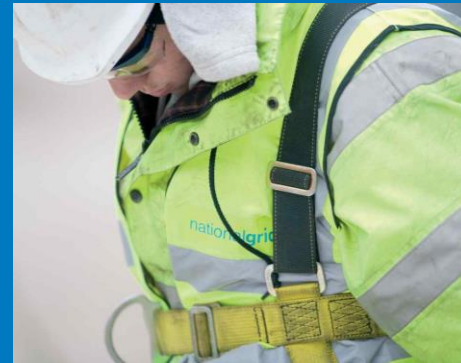
Action 0501

Gas Charging Review: Action 0501

1 in 20 question

- The 1-in-20 gas demand forecast is the peak day demand in a cold winter that statistically would be expected once every twenty years.
- Each element of demand (Domestic, power stations, commercial etc) of each forecast year is run through 62 years of weather history to investigate what would have happened if that weather happened again.
- From all the peak values simulated, the top fifth percentile is then the 1-in-20 peak.

Gas Charging Review



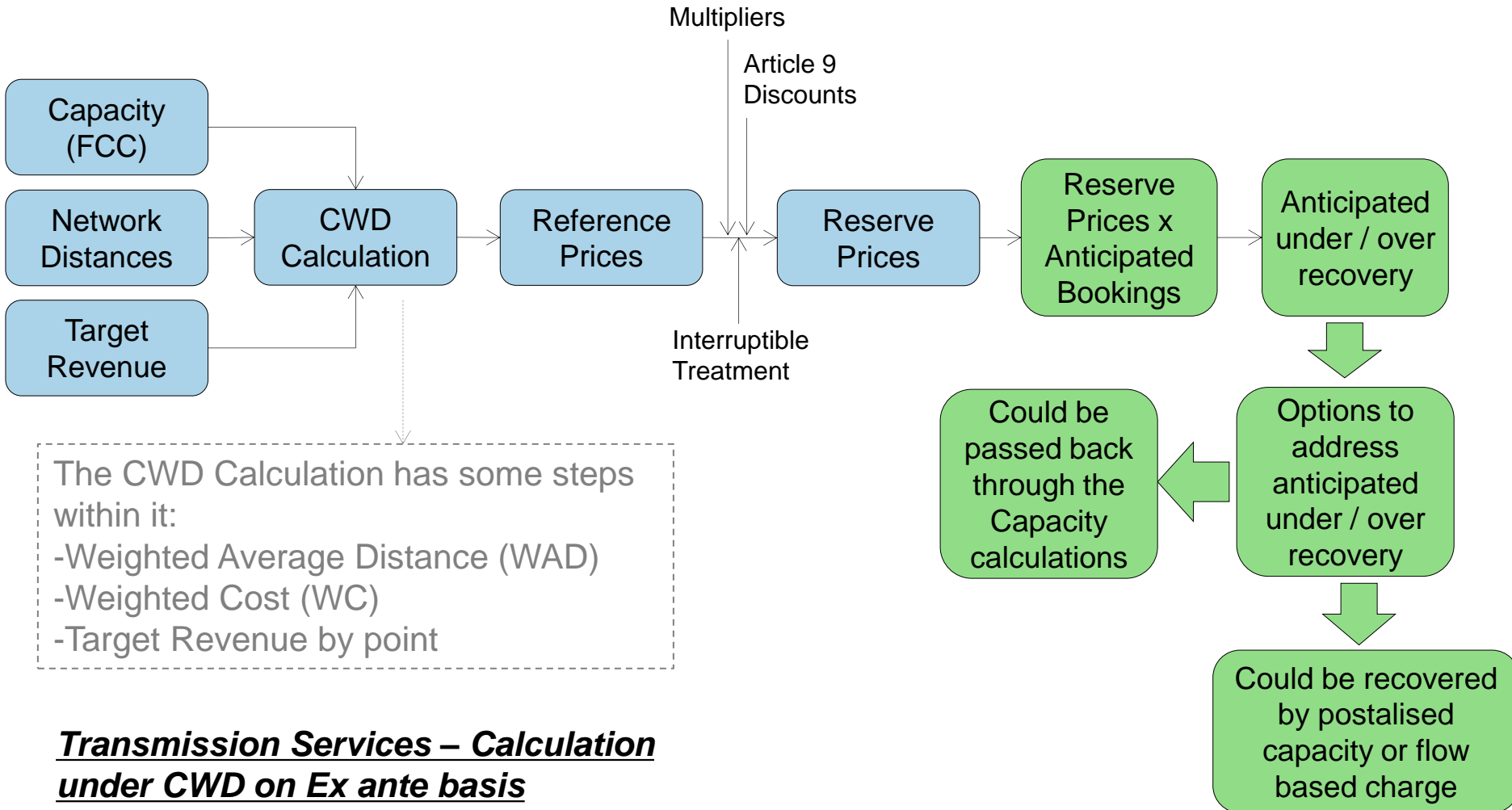
Action 0707 extension

update - Influence on entry vs exit impact in the CWD model of existing contracts

Gas Charging Review: CWD Calculation – Existing Contracts

- Existing contracts and how they are to be taken into account in any Capacity price calculations are not prescribed in TAR NC
- The method of inclusion in the modelling to date is as per material presented at NTSCMFs on 2 August 2017 and 23 August (repeated here for information in the following slides)

Gas Charging Review: CWD Calculation - simplified



Gas Charging Review:

Some key steps in CWD Calculations

	Entry Capacity Calculation	Exit Capacity Calculation
Weighted Average Distance (WAD)	$\frac{(\text{Sumproduct Exit Point FCC} \times \text{Distance to Entry Point})}{\text{Sum Exit Point FCC}}$	$\frac{(\text{Sumproduct Entry Point FCC}^{\#} \times \text{Distance to Exit Point})}{\text{Sum Entry Point FCC}^{\#}}$
Weighted Cost (WC)	$\frac{\text{Entry Point FCC}^* \times \text{WAD}}{(\text{Sumproduct Entry Point FCC}^* \times \text{WAD})}$	$\frac{\text{Exit Point FCC} \times \text{WAD}}{(\text{Sumproduct Exit Point FCC} \times \text{WAD})}$
Target Revenue by point (TRP)	Entry Target Revenue x WC	Exit Target Revenue x WC
Reference Price (RefP)	Entry TRP / Entry Point FCC*	Exit TRP / Exit Point FCC

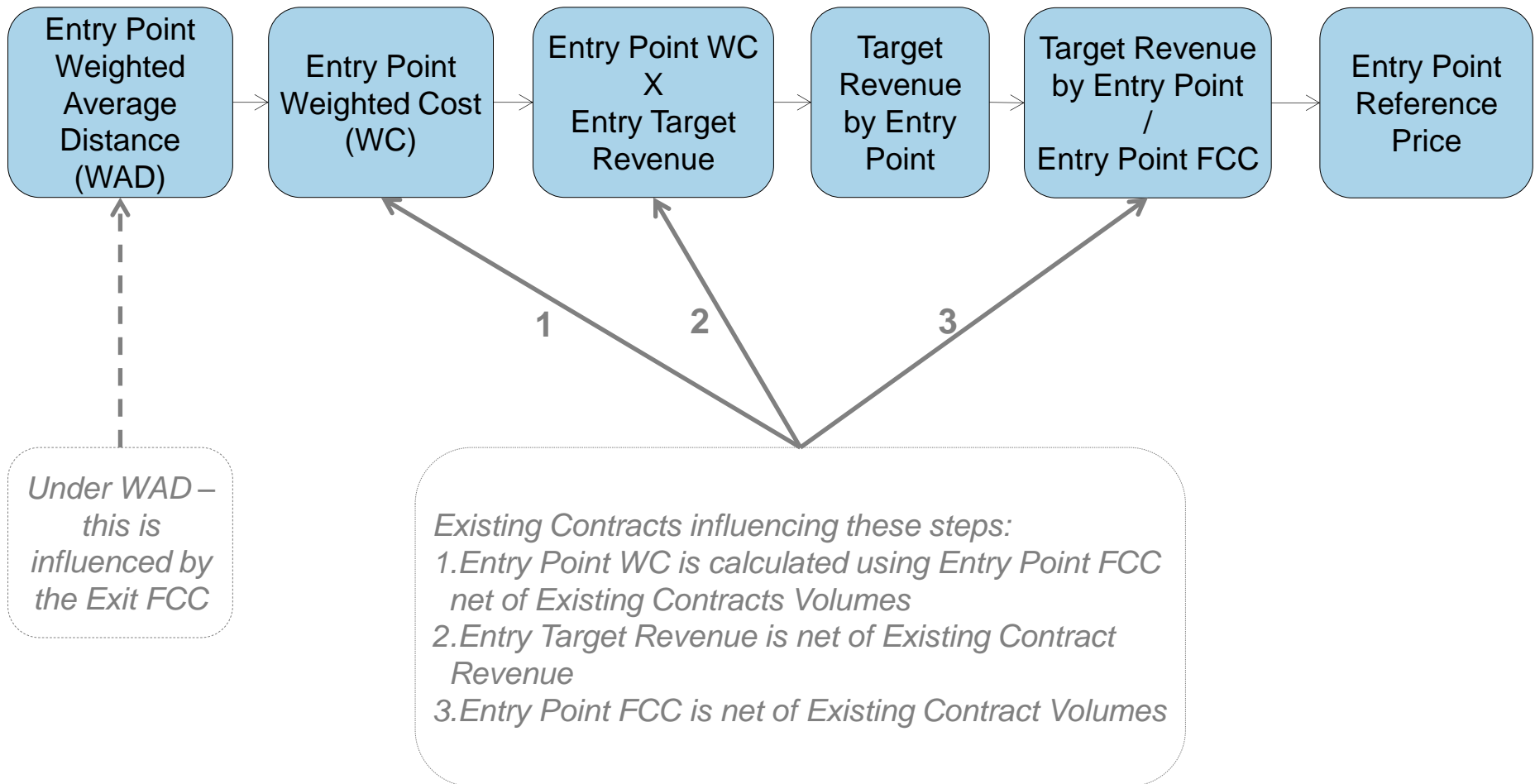
Entry Point FCC: How the current CWD Model is designed:

#Entry Point FCC – this is Gross Entry Point FCC (not reduced by Existing Contracts)

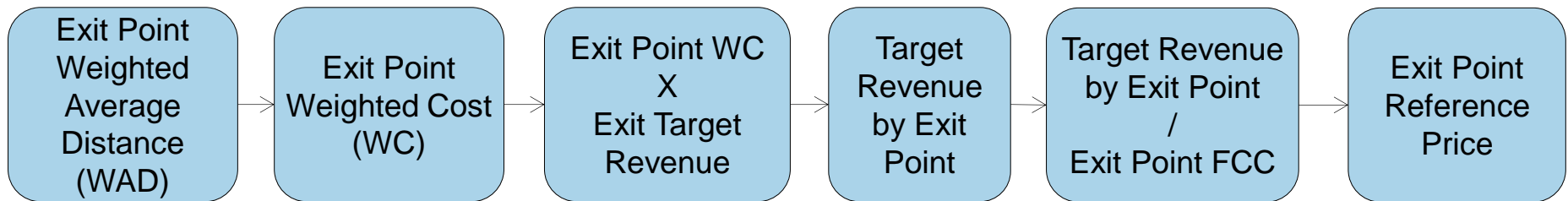
*Entry Point FCC – this is the Entry Point FCC net of Existing Contract Capacity

N.B. Exit Capacity has no Existing Contracts (as per article 35 TAR NC definition)

Gas Charging Review: Entry Calculations under CWD



Gas Charging Review: Exit Calculations under CWD



Under WAD – this is influenced by the Entry FCC. The Entry FCC used is the FCC without any Existing Contracts netted off (i.e. the Gross FCC).

If Existing contracts were netted off at this point then Exit would be impacted by ECs.

Gas Charging Review: CWD Calculation Summary

- Under CWD, Entry does influence Exit and vice versa at the Weighted Average Distance (WAD) stage, linked to the FCC levels
- Existing contracts, if netted off FCC will impact Entry Capacity calculations and may impact Exit
 - Level of impact not driving by overall level of FCC but the profile of capacity across the points, so the relative differences between points.
- Overall the FCC number for each has the most influence on its own charges when spreading the target revenue by point over the FCC per point

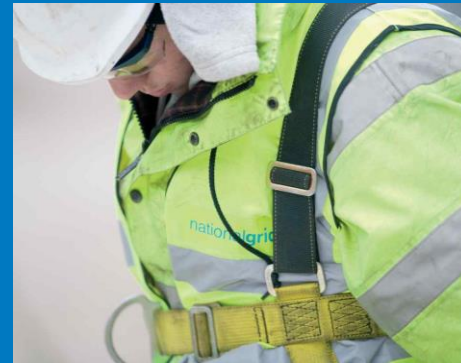
Gas Charging Review: Accommodating Existing Contracts

- For Entry, the method of incorporating Existing Contracts is not prescribed under TAR NC
- Existing Contracts (ECs) must be taken into account in the overall charging methodology.
 - Net capacity at each point with total entry target revenue net of ECs (as per available Transmission Services CWD Model available)
- A question was asked about the impact of pricing at a gross capacity level
 - Gross capacity at each point and entry target revenue excluding ECs
 - Discussion for potential impacts of such an approach

Gas Charging Review: Accommodating Existing Contracts

- Method to calculate on a Gross basis for Existing contracts:
- National Grid took an action to provide some instruction on how to do this in the CWD Transmission Services Model.
- This will be made available post NTSCMF and updated into this slide pack shortly after 26 September NTSCMF

Gas Charging Review



Plan and change process

Gas Charging Review: Topic Development - Review

- Reached the end of the discussion topic timeline that was put together to ensure all topics had time against them
 - Discussing each item at least twice
 - Additional meetings were added in as needed
 - The discussions were facilitated to encourage as many views and positions as possible.
- These discussions have been useful and will form part of the range of views and positions, that National Grid will take into consideration when updating UNC0621.

Gas Charging Review:

Topic Development – Discussion timeline (1/2)

Date	Meeting	Key topic to discuss [#]
30 May 13:00 – 15:00 (complete)	Sub Group	<ul style="list-style-type: none"> Forecasted Contracted Capacity
5 June (complete)	NTSCMF	<ul style="list-style-type: none"> Forecasted Contracted Capacity*
14 June 10:00 – 12:00 (complete)	Sub Group	<ul style="list-style-type: none"> Revenue Reconciliation / Recovery (may also include some views on Multipliers)
29 June 10:00 – 12:00 (complete)	Sub Group	<ul style="list-style-type: none"> Avoiding inefficient bypass of the NTS
7 July (complete)	NTSCMF	<ul style="list-style-type: none"> CWD Updated Model Revenue Reconciliation / Recovery* Avoiding inefficient bypass of the NTS*
11 July 13:00 – 15:00 (complete)	Sub Group	<ul style="list-style-type: none"> Specific Capacity Discounts
17 July (complete)	NTSCMF	<ul style="list-style-type: none"> Specific Capacity Discounts* Non-Transmission Services Model*
25 July 13:00 – 15:00 (complete)	Sub group	<ul style="list-style-type: none"> Multipliers

[#]There may be some occasions where the topic runs over a few meetings, we will revisit the sub-group / NTSCMF meeting topic if this happens.

* These topics will be relaying outputs from the sub-group in addition to further discussion at NTSCMFs

Gas Charging Review:

Topic Development – Discussion timeline (2/2)

Date	Meeting	Key topic to discuss [#]
2 August (complete)	NTSCMF	<ul style="list-style-type: none"> Multipliers* Avoiding inefficient bypass of the NTS
8 August 13:00 – 15:00 (complete)	Sub Group	<ul style="list-style-type: none"> Interruptible
23 August (complete)	NTSCMF	<ul style="list-style-type: none"> Interruptible* Specific Capacity Discounts Non-Tx Services
24 August 10:00 – 12:00 (complete)	Sub Group	<ul style="list-style-type: none"> Existing Contracts
31 August 10:00 – 12:00 (complete)	Sub Group	<ul style="list-style-type: none"> Revenue Reconciliation/Recovery Mechanisms
5 September	NTSCMF	<ul style="list-style-type: none"> Existing Contracts* Revenue Reconciliation/Recovery Mechanisms*
8 September 10:00 – 12:00	Sub Group	<ul style="list-style-type: none"> Forecasted Contracted Capacity
12 September 10:00 – 12:00	Sub Group	<ul style="list-style-type: none"> Avoiding inefficient bypass of the NTS
19 September 13:00 – 15:00	Sub Group	<ul style="list-style-type: none"> Multipliers / Interruptible
26 September	NTSCMF	<ul style="list-style-type: none"> Forecasted Contracted Capacity Avoiding inefficient bypass of the NTS Multipliers / Interruptible
28 September 10:00 – 12:00	Sub Group	<ul style="list-style-type: none"> Cancelled

Gas Charging Review: Charging Sub Group supporting NTSCMF

- As we move into October, UNC0621 will be updated and further discussions will be at NTSCMF
- If, or when, there is a need to host sub groups to feed back to NTSCMF National Grid will consider how these will be facilitated.

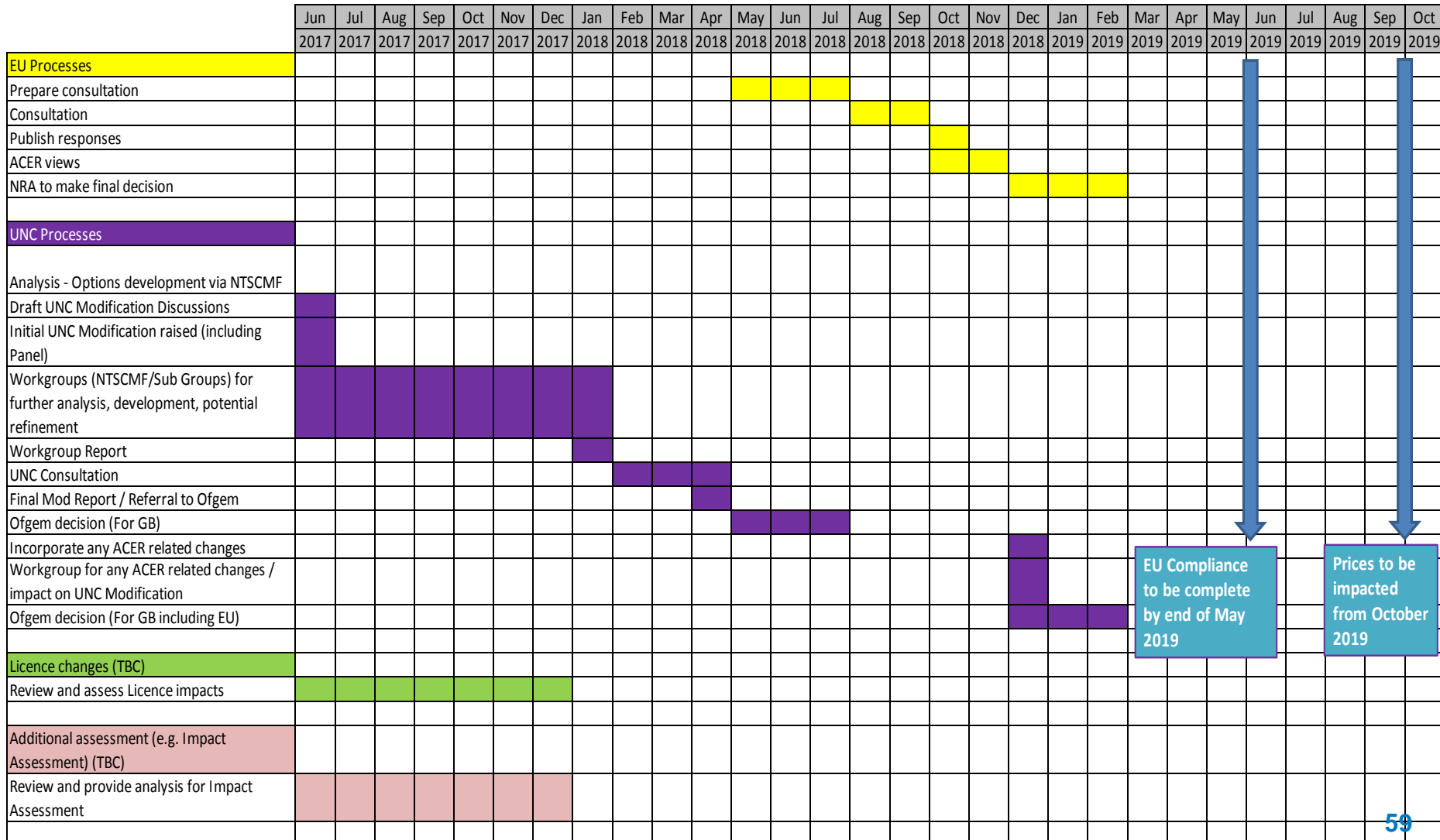
Plan and Change process

Timeline – options for GB / EU consultations

- Previously we have discussed the options of carrying out the GB UNC change process and the required EU consultations (as per TAR NC) either:
 - In series; or
 - In parallel
- At 23 August NTSCMF the group discussed the scenario whereby the Workgroup report could be used for the EU TAR NC consultation (the two approaches are shown at a high level on the next two slides)
- Opportunity to discuss further views and observations

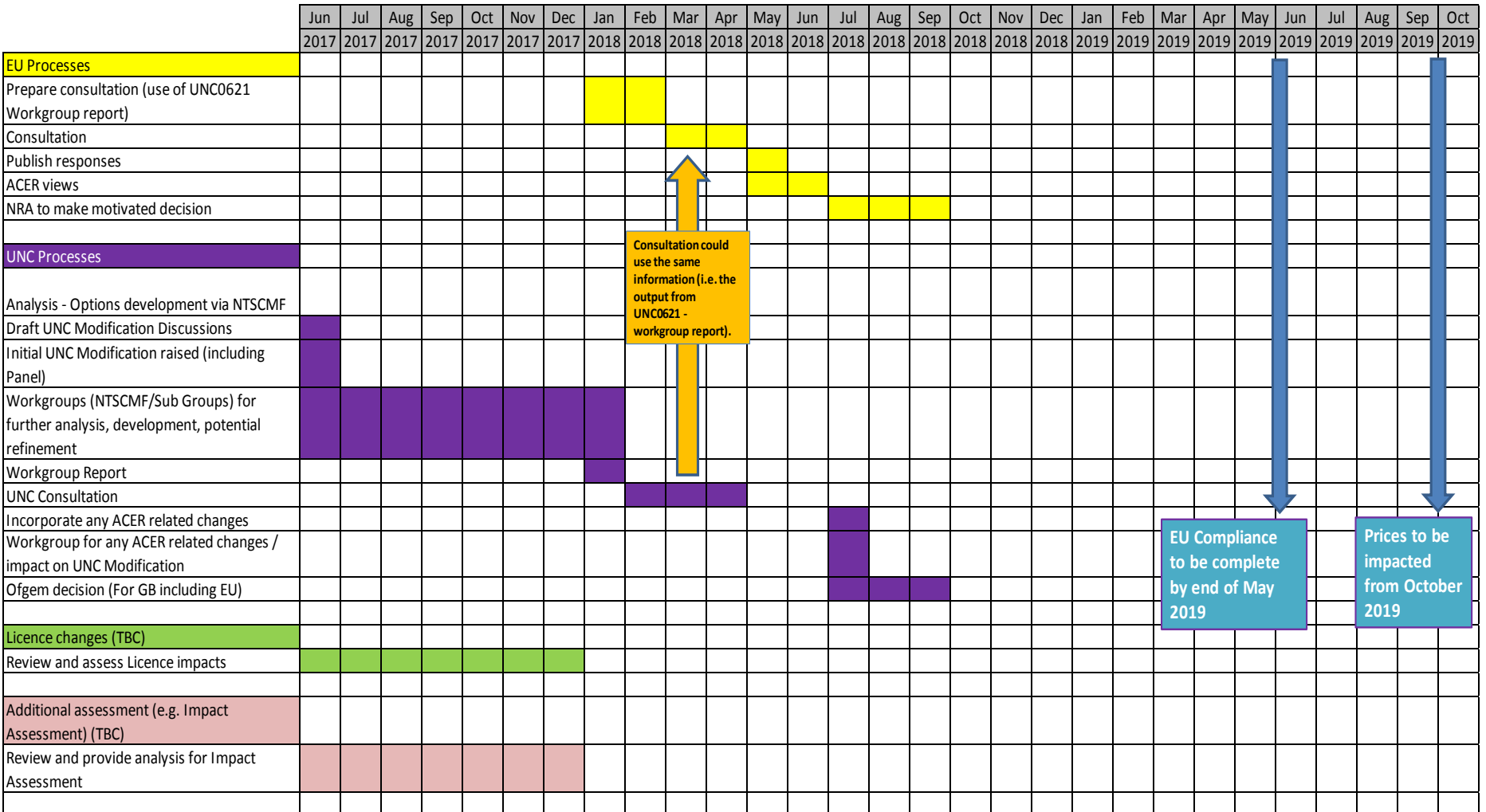
Plan and Change process

Timeline (simplified) – in “series”



Plan and Change process

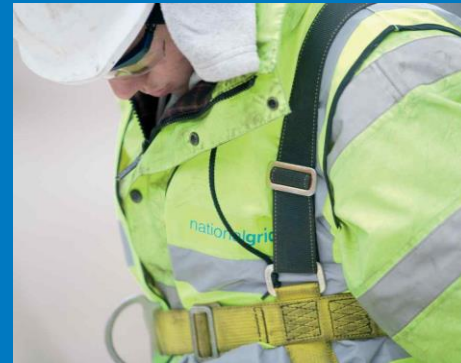
Timeline (simplified) – in “parallel”



Gas Charging Review: Impact Assessment Questions

- For any impact assessment, beneficial to capture thoughts on:
 - What should an Impact Assessment contain?
 - What impacts or analysis would parties like to see in an Impact Assessment?
 - What could be covered in UNC0621, if appropriate, that can support an impact assessment?

Gas Charging Review



Charging Models – Development of Transmission Services CWD spreadsheet

Gas Charging Review: Charging Model development (1)

- At the end of 5 September NTSCMF a demonstration of the Transmission Services CWD model v1.4 was done
- Key updates in v1.4:
 - Auction / capacity product alignment for IP/Non-IP
 - Capacity splits can now be done by User Group / Point specific for FCC and booking scenarios
- Available on the Joint Office website:
<https://www.gasgovernance.co.uk/ntscmf/>
- All questions, comments, should be sent to National Grid: box.transmissioncapacityandcharging@nationalgrid.com

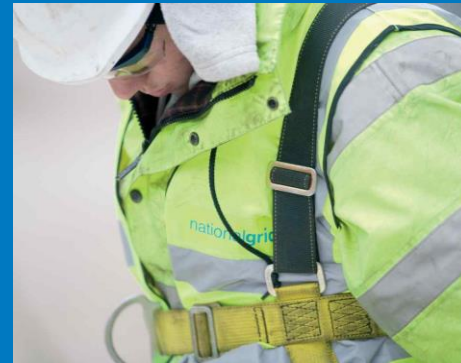
Gas Charging Review: Charging Model development (2)

Further development

- Transmission Services:
 - Cost Allocation assessment to be added
- Non Transmission Services:
 - TBC

- Are there any other developments Users would like to see updated in the next version of the models?

Gas Charging Review



UNC Modification
Next Steps

Gas Charging Review: UNC 0621 Modification – relevant updates

- UNC 0621 Modification was sent to Panel on 2 June
- Voted to go to workgroup for development and back to Panel for January 2018
 - Twice monthly NTSCMFs, at least twice monthly Sub Groups – now concluded
- For the next update ahead of 13 October NTSCMF, aiming to provide at least 2 clear days ahead of NTSCMF for publication
 - Publication by close 10 October
 - Further updates may be needed and presented at future NTSCMFs

Contact us:

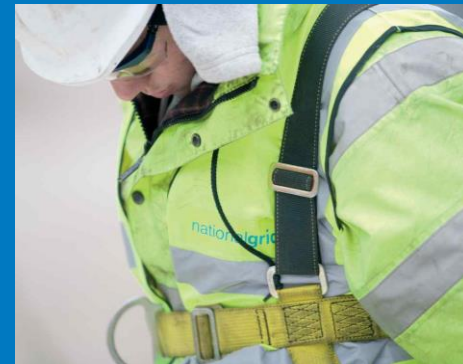
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